```
CLEAR STORAGE 1     ,008015,019026,030,034041,045,053,0570571026                                        1
,008015,019026,030,034041,045,053,0570571026                          00012TAP1
CLEAR STORAGE 2     L068112,102106,113/101099/I99,027A070028)027B0010270B0261,001/001113I0              2
L068112,102106,113/101099/I99,027A070028)027B0010270B0261,001/001113I0 00022TAP1
BOOTSTRAP           ,008015,022029,036040,047054,061068,072/061039              ,0010011040             3
,008015,022029,036040,047054,061068,072/061039              ,001001104000032TAP1

                          1401 TWO-TAPE AUTOCODER, PHASE 1 - JULY 20, 1962 RBR       2TAP1               PAGE    1

 SEQ PG LIN  LABEL  OP    OPERANDS                                           SFX CT  LOCN  INSTRUCTION TYPE  CARD
 101         000    JOB   1401 TWO-TAPE AUTOCODER, PHASE 1 - JULY 20, 1962 RBR
 102                CTL   630 1
 103  1 03   *   PHASE 1 - READ AND ANALYZE SOURCE PROGRAM
 104  1 04   *                    ** SYSTEMS CONTROL **
 105  1 05          ORG   82                                                                 0082
 106  1 06   CHECK  DCW   @ @                                                     1  0082                     4
 107  1 07          DCW   @  }@                                                   3  0085                     4
   }                                     L004085,083040,040040,040040104000042TAP1
 108         81     DC    @}@                 GROUP MARK WITHOUT WORD MARK        1  0081                     5
 109  1 09          ORG   100                                                                0100
}                                        L001081)081081,040040,040040104000052TAP1
 110  1 10   LOAD   RWD   1                                                       5  0100  U %U1 R            6
 111  1 11          RTW   1,CHECK                                                 8  0105  L %U1 082 R        6
 112  1 12          BER   TPERR                                                   5  0113  B 201 L            6
 113  1 13          BCE   *&5,CHECK,D                                             8  0118  B 130 082 D        6
 114  1 14          B     LOAD&5                                                  4  0126  B 105              6
 115  1 15          BSP   1                                                       5  0130  U %U1 B            6
U%U1RL%U1082RB201LB130082DB105U%U1B    L035134,105113,118126,130040104000062TAP1
 116  1 16          RTW   1,333                                                   8  0135  L %U1 333 R        7
 117  1 18          SW    CHECK&3                                                 4  0143  , 085              7
 118  1 19          RTW   1,CHECK                                                 8  0147  L %U1 082 R        7
 119                BCE   SENTNL,CHECK,%                                          8  0155  B I43 082 %        7
 120  1 21          B     *-19                                                    4  0163  B 147              7
 121  1 22   SEEK   EQU   LOAD&25                                                    0125
 122  1 23   SYSTEM R     40                                                      4  0167  1 040              7
L%U1333R,085L%U1082RBI43082%B1471040   L036170,143147,155163,167040104000072TAP1
 123  1 24          BSP   1                                                       5  0171  U %U1 B            8
 124  1 25          SKP   1                                                       5  0176  U %U1 E            8
 125  1 26          B     40                                                      4  0181  B 040              8
 126         LASTLT EQU   10                                                         0010
 127  1 28   REITER DC    @ @                                                     1  0185                     8
 128  1 29   FULL   DC    @ @                                                     1  0186                     8
 129  1 30   LITCTL DCW   #1                                                      1  0187                     8
 130  1 31   RELATV DC    @ @                                                     1  0188                     8
 131         TX3987 DCW   @I87@                                                   3  0191                     8
 132  1 32          ORG   3943                                                               3943
U%U1BU%U1EB040    I87                    L021191,176181,187189,040040104000082TAP1
 133  1 321  SENTNL BCE   REWRIT,333,1                                            8  3943  B I71 333 1        9
 134  1 322         BCE   REWRIT,333,3                                            8  3951  B I71 333 3        9
 135  1 323         BCE   REWRIT,333,7                                            8  3959  B I71 333 7        9
 136  1 324         B     HSKPG                                                   4  3967  B 334              9
 137  1 325  REWRIT BSP   1                                                       5  3971  U %U1 B            9
BI713331BI713333BI713337B334U%U1B      L033I75,I51I59,I67I71,040040104000092TAP1
 138                WTW   1,CHECK                                                 8  3976  L %U1 082 W       10
 139                BER   TPERR                                                   5  3984  B 201 L           10
 140                BCE   334,CHECK,%                                             8  3989  B 334 082 %       10
 141                H                                                             1  3997  .                 10
 142  1 33          ORG   201                                                                0201
L%U1082WB201LB334082%.                 L022I97,I84I89,I97040,040040104000102TAP1
 143  1 34   TPERR  SBR   X1                                                      4  0201  H 089             11
 144  1 35          A     TX3987,X1                                               7  0205  A 191 089         11
 145  1 36          BW    TXCOMP,TXGET&1                                          8  0212  V 252 221 1       11
 146  1 37   TXGET  MLC   17&X1,TXEOF&4                                           7  0220  M 0/7 330         11
 147  1 38          MLC   TXDUMY&4,17&X1                                          7  0227  M 325 0/7         11
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                              1401 TWO-TAPE AUTOCODER, PHASE 1 - JULY 20, 1962 RBR       2TAP1              PAGE    2

 SEQ PG LIN  LABEL  OP    OPERANDS                                          SFX CT  LOCN  INSTRUCTION TYPE  CARD
H089A191089V2522211M0/7330M3250/7      L033233,205212,220227,040040104000112TAP1
 148  1 39          MLC   3&X1,TXBSP&3                                          7  0234  M 0|3 263           12
 149                MLC   TXBSP&5,TXBSP                                         7  0241  M 265 260           12
 150  1 40          SW    TXGET&1                                               4  0248  , 221               12
 151  1 41   TXCOMP B     TXPERM,TXCNTL,9                                       8  0252  B 281 331 9         12
 152  1 42   TXBSP  BSP   1                                                     5  0260  U %U1 B             12
 153  1 43          SKP   1                                                     5  0265  U %U1 E             12
M0|3263M265260,221B2813319U%U1BU%U1E   L036269,241248,252260,265040104000122TAP1
 154  1 44          A     *-6,TXCNTL                                            7  0270  A 270 331           13
 155  1 45          B     0&X1                                                  4  0277  B 0|0               13
 156  1 46   TXPERM H     888,888                                               7  0281  . 888 888           13
 157  1 47          MLC   TXPERM-1,TXCNTL                                       7  0288  M 280 331           13
 158  1 48          B     TXBSP                                                 4  0295  B 260               13
 159  1 49   TXDONE MLC   TXPERM-1,TXCNTL                                       7  0299  M 280 331           13
A270331B0|0.888888M280331B260M280331   L036305,277281,288295,299040104000132TAP1
 160  1 50          MLC   TXEOF&4,17&X1                                         7  0306  M 330 0/7           14
 161  1 51          CW    TXGET&1                                               4  0313  ) 221               14
 162  1 52          B     13&X1                                                 4  0317  B 0/3               14
 163  1 53   TXDUMY B     TXDONE                                                4  0321  B 299               14
 164  1 54          DC    @ @                                                   1  0325                      14
 165  1 55   TXEOF  BEF   1                                                     5  0326  B 001 K             14
 166  1 56   TXCNTL DCW   @0@                                                   1  0331                      14
 167  1 561         DC    #1                                                    1  0332                      14
 168  1 562         DCW   @1@                                                   1  0333                      14
 169  1 58   *
 170  1 59          ORG   334                                                         0334
M3300/7)221B0/3B299 B001K0 1           L028333,313317,321326,331333104000142TAP1
 171  1 60   HSKPG  CW    DAON#1,CARDIN#1                                       7  0334  ) H40 H41           15
 172  1 61          CW    TWO#1                                                 4  0341  ) H42               15
 173  1 62          RWD   2                                                     5  0345  U %U2 R             15
 174  1 621         NOP   000                                                   4  0350  N 000               15
 175  1 622         NOP                                                         1  0354  N                   15
 176  1 63          SW    3998                                                  4  0355  , I98               15
 177  1 64          LCA   3998,RECRD2&171                                       7  0359  L I98 E18           15
)H40H41)H42U%U2RN000N,I98LI98E18       L032365,341345,350354,355359104000152TAP1
 178  1 65          LCA   3998,PARTBL&90                                        7  0366  L I98 G76           16
 179                LCA   3998,81                                               7  0373  L I98 081           16
 180                CS    80                                                    4  0380  / 080               16
 181                R                                                           1  0384  1                   16
 182                SS    1                                                     2  0385  K 1                 16
 183                C     20,RECORD&19                                          7  0387  C 020 F24           16
 184                BE    SETPAR                                                5  0394  B 444 S             16
LI98G76LI98081/0801K1C020F24B444S      L033398,373380,384385,387394104000162TAP1
 185                SW    76,CARDIN                                             7  0399  , 076 H41           17
 186                LCA   80,PARAMT&4                                           7  0406  L 080 G04           17
 187                B     PUTRCD                                                4  0413  B |21               17
 188  1 66   *
 189  1 67   *
 190  1 68   X1     EQU   0089                                                     0089
,076H41L080G04B|21                     L018416,406413,040040,040040104000172TAP1
 191  1 69   0089   DCW   @   @                                                 3  0089                      18
 192  1 70   X2     EQU   0094                                                     0094
                                       L003089,040040,040040,040040104000182TAP1
 193  1 71   0094   DCW   @   @                                                 3  0094                      19
 194  1 72   X3     EQU   0099                                                     0099
                                       L003094,040040,040040,040040104000192TAP1
 195  1 73   0099   DCW   @   @                                                 3  0099                      20
 196  1 74   *                  GET RECORD ROUTINE
                                       L003099,040040,040040,040040104000202TAP1
 197  1 75   RDCARD BWZ   *&005,CARDIN,1                                        8  0417  V 429 H41 1         21
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                         1401 TWO-TAPE AUTOCODER, PHASE 1 - JULY 20, 1962 RBR       2TAP1               PAGE    3

 SEQ PG LIN  LABEL  OP    OPERANDS                                              SFX CT  LOCN  INSTRUCTION TYPE  CARD
 198  1 76          B     READ                                                       4  0425  B 437             21
 199  1 77          CW    CARDIN                                                     4  0429  ) H41             21
 200  1 78          B     SETPAR                                                     4  0433  B 444             21
 201  1 79   READ   CS    0080                                                       4  0437  / 080             21
 202  1 82          R                                                                1  0441  1                 21
 203                SS    1                                                          2  0442  K 1               21
V429H411B437)H41B444/0801K1            L027443,425429,433437,441442104000212TAP1
 204         SETPAR SW    1,6                                                        7  0444  , 001 006         22
 205  1 81          SW    0016,0021                                                  7  0451  , 016 021         22
 206  1 815         SW    RECORD&75                                                  4  0458  , F80             22
 207                CS    PARAMT&69                                                  4  0462  / G69             22
 208  1 84          MLC   80,RECORD&79                                               7  0466  M 080 F84         22
 209  1 85          CHAIN 4                                                                            MACRO
 210                MLC                                                              1  0473  M           GEN     22
 211                MLC                                                              1  0474  M           GEN     22
,001006,016021,F80/G69M080F84MM        L031474,451458,462466,473474104000222TAP1
 212                MLC                                                              1  0475  M           GEN     23
 213                MLC                                                              1  0476  M           GEN     23
 214  1 88          CW    DMOD,RECORD                                                7  0477  ) H38 F05         23
 215  1 89          CW    ERRPOS,ERRPOS-002                                          7  0484  ) F91 F89         23
 216  1 90          MCW   BLANKS,LOCATN                                              7  0491  M H05 F99         23
 217  1 91          MCW                                                              1  0498  M                 23
 218  1 92          MCW                                                              1  0499  M                 23
MM)H38F05)F91F89MH05F99MM              L025499,476477,484491,498499104000232TAP1
 219  1 93          MCW                                                              1  0500  M                 24
 220  1 94          MCW   BLANKS,ERRPOS                                              7  0501  M H05 F91         24
 221  1 95          MCW                                                              1  0508  M                 24
 222  1 98          SW    PARAMT,PARAMT&010                                          7  0509  , G00 G10         24
 223  1 99          SW    PARAMT&020,PARAMT&030                                      7  0516  , G20 G30         24
 224  2 00          SW    PARAMT&040,PARAMT&050                                      7  0523  , G40 G50         24
 225  2 01          MCW   ZEROS,X1                                                   7  0530  M G79 089         24
MMH05F91M,G00G10,G20G30,G40G50MG79089  L037536,501508,509516,523530104000242TAP1
 226                BCE   PUTCMT,LABEL-5,*                                           8  0537  B 769 006 *       25
 227  2 03          C     20,@DCW  @                                                 7  0545  C 020 H47         25
 228  2 04          BE    CONST                                                      5  0552  B R79 S           25
 229  2 05          C     20,@DC   @                                                 7  0557  C 020 H52         25
 230  2 06          BE    CONST                                                      5  0564  B R79 S           25
 231                C     20,@DA   @                                                 7  0569  C 020 H57         25
B769006*C020H47BR79SC020H52BR79SC020H57L039575,545552,557564,569040104000252TAP1
 232  2 08          BE    DALINE                                                     5  0576  B !08 S           26
 233  2 09          C     20,@LTORG@                                                 7  0581  C 020 H62         26
 234  2 10          BE    LTORG                                                      5  0588  B B50 S           26
 235  2 11          C     20,@EX   @                                                 7  0593  C 020 H67         26
 236  2 12          BE    EXECUT                                                     5  0600  B B30 S           26
 237                C     20,@JOB  @                                                 7  0605  C 020 H72         26
B!08SC020H62BB50SC020H67BB30SC020H72   L036611,581588,593600,605040104000262TAP1
 238                BU    *&12                                                       5  0612  B 628 /           27
 239                MLC   80,PARAMT&4                                                7  0617  M 080 G04         27
 240                B     PUTRCD                                                     4  0624  B |21             27
 241  2 13          C     20,@END  @                                                 7  0628  C 020 H77         27
 242  2 14          BE    ENDSCE                                                     5  0635  B A73 S           27
 243  2 15          B     PROPND                                                     4  0640  B |88             27
 244  2 16   ANYLIT MLC   @000@,X1                                                   7  0644  M H80 089         27
B628/M080G04B|21C020H77BA73SB|88MH80089L039650,617624,628635,640644104000272TAP1
 245  2 17          MLC   @ @,PAR&59                                                 7  0651  M H81 E01         28
 246  2 18          SW    PAR,PAR&30                                                 7  0658  , D42 D72         28
 247  2 19          MLC   PAR&59,PAR&58                                              7  0665  M E01 E00         28
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                              1401 TWO-TAPE AUTOCODER, PHASE 1 - JULY 20, 1962 RBR       2TAP1               PAGE    4

 SEQ PG LIN  LABEL  OP    OPERANDS                                            SFX CT  LOCN  INSTRUCTION TYPE  CARD
 248  2 20          MLC                                                            1  0672  M                   28
 249  2 21          MLC   @      @,RECRD2&10                                       7  0673  M H87 C57           28
 250  2 22          MLC   AADDR,RECRD2&81                                          7  0680  M F86 D28           28
MH81E01,D42D72ME01E00MMH87C57MF86D28   L036686,658665,672673,680040104000282TAP1
 251  2 23          BCE   NUMLIT,AADDR,L                                           8  0687  B 805 F86 L         29
 252  2 24          BCE   ALPHA,AADDR,F                                            8  0695  B 879 F86 F         29
 253  2 25          BCE   LTAREA,AADDR,W                                           8  0703  B 894 F86 W         29
 254  2 26          BCE   ADCON,AADDR,C                                            8  0711  B 948 F86 C         29
 255  2 29   SETLTB MLC   @030@,X1                                                 7  0719  M H90 089           29
B805F86LB879F86FB894F86WB948F86CMH90089L039725,695703,711719,040040104000292TAP1
 256  2 30          MLC   BADDR,RECRD2&81                                          7  0726  M F87 D28           30
 257  2 31          BCE   NUMLIT,BADDR,L                                           8  0733  B 805 F87 L         30
 258  2 32          BCE   ALPHA,BADDR,F                                            8  0741  B 879 F87 F         30
 259  2 33          BCE   LTAREA,BADDR,W                                           8  0749  B 894 F87 W         30
 260  2 34          BCE   ADCON,BADDR,C                                            8  0757  B 948 F87 C         30
MF87D28B805F87LB879F87FB894F87WB948F87CL039764,733741,749757,040040104000302TAP1
 261  2 37          B     PUTRCD                                                   4  0765  B |21               31
 262         PUTCMT LCA   SERIAL,79                                                7  0769  L E55 079           31
 263                A     @1@,SERIAL                                               7  0776  A H91 E55           31
 264                WTW   1,1                                                      8  0783  L %U1 001 W         31
 265                BER   TPERR                                                    5  0791  B 201 L             31
 266                BEF   *&1                                                      5  0796  B 801 K             31
B|21LE55079AH91E55L%U1001WB201LB801K   L036800,769776,783791,796040104000312TAP1
 267                B     RDCARD                                                   4  0801  B 417               32
 268  2 38   *                        SET UP NUMERIC LITERAL
 269  2 39   NUMLIT CW    PARAMT&20&X1,PARAMT&10&X1                                7  0805  ) GS0 G/0           32
 270  2 40          LCA   PARAMT&27&X1,PAR&27                                      7  0812  L GS7 D69           32
 271  2 41          MLC   PAR&27,PAR&56                                            7  0819  M D69 D98           32
 272  2 42          MLC   @000@,X2                                                 7  0826  M H80 094           32
 273  2 43          MLC   PARAMT&29&X1,X2                                          7  0833  M GS9 094           32
B417)GS0G/0LGS7D69MD69D98MH80094MGS9094L039839,805812,819826,833040104000322TAP1
 274  2 44          MZ    PAR,PAR&29&X2                                            7  0840  Y D42 DP1           33
 275  2 45   LITOUT LCA   @000@,RECRD2&90                                          7  0847  L H80 D37           33
 276  2 46          A     PARAMT&29&X1,RECRD2&90                                   7  0854  A GS9 D37           33
 277  2 47          LCA   PAR&27,RECRD2&47                                         7  0861  L D69 C94           33
 278  2 48          MLC   @Y@,LITOUT-7                                             7  0868  M H92 840           33
 279  2 49          B     PUTLIT                                                   4  0875  B 977               33
 280  2 50   *                        SET UP ALPHANUMERIC LITERAL
YD42DP1LH80D37AGS9D37LD69C94MH92840B977L039878,847854,861868,875040104000332TAP1
 281  2 51   ALPHA  MLC   @N@,LITOUT-7                                             7  0879  M H93 840           34
 282  2 515         CW    PAR&30                                                   4  0886  ) D72               34
 283  2 52          B     NUMLIT                                                   4  0890  B 805               34
 284  2 53   *                        SET UP LITERAL AREA
 285  2 54   LTAREA LCA   PARAMT&5&X1,RECRD2&10                                    7  0894  L G|5 C57           34
 286                MLC   BLANKS,PAR&29                                            7  0901  M H05 D71           34
 287                MLC   BLANKS                                                   4  0908  M H05               34
 288                MLC   BLANKS                                                   4  0912  M H05               34
MH93840)D72B805LG|5C57MH05D71MH05MH05  L037915,886890,894901,908912104000342TAP1
 289  2 56          MLC   PARAMT&9&X1,PAR&2                                        7  0916  M G|9 D44           35
 290  2 57          LCA   @#@,PAR                                                  7  0923  L H94 D42           35
 291  2 58          LCA   @000@,RECRD2&90                                          7  0930  L H80 D37           35
 292  2 59          A     PARAMT&9&X1,RECRD2&90                                    7  0937  A G|9 D37           35
 293  2 60          B     LITOUT&14                                                4  0944  B 861               35
 294  2 61   *                        SET UP ADDRESS CONSTANT
 295  2 62   ADCON  MLC   PARAMT&7&X1,PAR&7                                        7  0948  M G|7 D49           35
MG|9D44LH94D42LH80D37AG|9D37B861MG|7D49L039954,923930,937944,948040104000352TAP1
 296  2 63          SW    PARAMT&18&X1                                             4  0955  , G/8               36
 297  2 64          MLC   PARAMT&14&X1,PAR&14                                      7  0959  M G/4 D56           36
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                              1401 TWO-TAPE AUTOCODER, PHASE 1 - JULY 20, 1962 RBR       2TAP1               PAGE    5

 SEQ PG LIN  LABEL  OP    OPERANDS                                            SFX CT  LOCN  INSTRUCTION TYPE  CARD
 298  2 65          MLC   PARAMT&19&X1,PAR&19                                      7  0966  M G/9 D61            36
 299  2 66          B     LITOUT                                                   4  0973  B 847                36
 300  2 92   *                  WRITE A LITERAL RECORD
 301  2 93   PUTLIT LCA   SERIAL,RECRD2&4                                          7  0977  L E55 C51            36
 302  2 94          CW    RECRD2                                                   4  0984  ) C47                36
 303  2 95          SW    RECRD2&3                                                 4  0988  , C50                36
,G/8MG/4D56MG/9D61B847LE55C51)C47,C50  L037991,959966,973977,984988104000362TAP1
 304         TWLIT  WTW   2,RECRD2                                                 8  0992  L %U2 C47 W          37
 305  2 97          BER   TPERR                                                    5  1000  B 201 L              37
 306  2 99          BW    RESET,DAON                                               8  1005  V |73 H40 1          37
 307  3 00          BCE   SETLTB,X1-1,0                                            8  1013  B 719 088 0          37
 308         PUTRCD LCA   SERIAL,RECORD&79                                         7  1021  L E55 F84            37
L%U2C47WB201LV|73H401B7190880LE55F84   L036|27,|00|05,|13|21,040040104000372TAP1
 309  3 05          B     PUTXXX                                                   4  1028  B I23                38
 310  3 051         NOP                                                            1  1032  N                    38
 311  3 052         NOP                                                            1  1033  N                    38
 312  3 053         NOP                                                            1  1034  N                    38
 313  3 06          WTW   1,RECORD                                                 8  1035  L %U1 F05 W          38
 314  3 07          BER   TPERR                                                    5  1043  B 201 L              38
 315  3 08          BEF   *&1                                                      5  1048  B |53 K              38
BI23NNNL%U1F05WB201LB|53K              L025|52,|32|33,|34|35,|43|48104000382TAP1
 316  3 09          BW    RMBACK,ALFGM                                             8  1053  V Q37 H33 1          39
 317  3 10          BW    NOREAD,DAON                                              8  1061  V M39 H40 1          39
 318  3 11          B     RDCARD                                                   4  1069  B 417                39
 319  3 12   RESET  MLC   ADDR-1,PARAMT&29&X1                                      7  1073  M G94 GS9            39
 320  3 13          CW    DAON                                                     4  1080  ) H40                39
 321  3 14          B     PUTRCD-8                                                 4  1084  B |13                39
 322  3 15   *                   ANALYZE OPERAND & SET PARAMT
 323  3 16   PROPND SBR   ANALEX&003                                               4  1088  H W01                39
VQ37H331VM39H401B417MG94GS9)H40B|13HW01L039|91,|61|69,|73|80,|84|88104000392TAP1
 324  3 17          BCE   ANALEX,0021,                                             8  1092  B V98 021            40
 325  3 18          MCW   K20,X1                                                   7  1100  M E30 089            40
 326  3 19          MCW   ZEROS,X2                                                 7  1107  M G79 094            40
 327  3 20          MCW   I99,X3                                                   7  1114  M E46 099            40
 328  3 21          CW    COMMSW,ACTADD                                            7  1121  ) G85 G86            40
BV98021 ME30089MG79094ME46099)G85G86   L036/27,/00/07,/14/21,040040104000402TAP1
 329  3 22          BCE   ALFOPD,0021,@                                            8  1128  B S26 021 @          41
 330  3 23          BWZ   NOZONE,0021,2                                            8  1136  V /64 021 2          41
 331  3 24          BCE   STEP,0021,&                                              8  1144  B S08 021 &          41
 332  3 25          BCE   STEP,0021,-                                              8  1152  B S08 021 -          41
 333  3 26          B     ANALYZ                                                   4  1160  B /68                41
BS26021@V/640212BS08021&BS08021-B/68   L036/63,/36/44,/52/60,040040104000412TAP1
 334  3 27   NOZONE SW    ACTADD                                                   4  1164  , G86                42
 335  3 28   ANALYZ BCE   COMMA,0001&X1,,                                          8  1168  B S96 0|1 ,          42
 336  3 29          BCE   PLUS,0001&X1,&                                           8  1176  B U29 0|1 &          42
 337  3 30          BCE   PLUS,0001&X1,-                                           8  1184  B U29 0|1 -          42
 338  3 31          BCE   AREA,0001&X1,#                                           8  1192  B U59 0|1 #          42
,G86BS960|1,BU290|1&BU290|1-BU590|1#   L036/99,/68/76,/84/92,040040104000422TAP1
 339  3 32          BCE   END,0001&X1,                                             8  1200  B V86 0|1            43
 340  3 33   STEP   A     K1,X1                                                    7  1208  A E19 089            43
 341  3 34          A     K1,X3                                                    7  1215  A E19 099            43
 342  3 35          B     ANALYZ                                                   4  1222  B /68                43
 343  3 36   ALFOPD S     X1,X3                                                    7  1226  S 089 099            43
BV860|1 AE19089AE19099B/68S089099      L033S32,S08S15,S22S26,040040104000432TAP1
 344  3 37          MZ    BLANKS,X3                                                7  1233  Y H05 099            44
 345  3 38          MCW   K71,X1                                                   7  1240  M E40 089            44
 346  3 39   ALFTST BCE   ALFEND,0001&X1,@                                         8  1247  B S66 0|1 @          44
 347  3 40          A     MINUS,X1                                                 7  1255  A E50 089            44
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                        1401 TWO-TAPE AUTOCODER, PHASE 1 - JULY 20, 1962 RBR       2TAP1              PAGE    6

 SEQ PG LIN  LABEL  OP    OPERANDS                                            SFX CT  LOCN  INSTRUCTION TYPE  CARD
 348  3 41          B     ALFTST                                                   4  1262  B S47                44
YH05099ME40089BS660|1@AE50089BS47      L033S65,S40S47,S55S62,040040104000442TAP1
 349  3 42   ALFEND A     X1,X3                                                    7  1266  A 089 099            45
 350  3 43          MZ    K1,X3-002                                                7  1273  Y E19 097            45
 351  3 44          B     STORE                                                    4  1280  B W13                45
 352  3 45          BCE   GAP2,0001&X1,,                                           8  1284  B T71 0|1 ,          45
 353  3 46          B     ANALEX                                                   4  1292  B V98                45
 354  3 47   COMMA  B     STORE                                                    4  1296  B W13                45
A089099YE19097BW13BT710|1,BV98BW13     L034S99,S73S80,S84S92,S96040104000452TAP1
 355  3 48   GAP    BCE   GAP1,0001&X1,                                            8  1300  B T63 0|1            46
 356  3 49          BWZ   USE60,COMMSW,1                                           8  1308  V U10 G85 1          46
 357  3 50   USE30  MCW   K30,X2                                                   7  1316  M E35 094            46
 358  3 51          SW    COMMSW                                                   4  1323  , G85                46
 359  3 52   FIRST  SW    0001&X1                                                  4  1327  , 0|1                46
 360  3 53          CW    ACTADD                                                   4  1331  ) G86                46
BT630|1 VU10G851ME35094,G85,0|1)G86    L035T34,T08T16,T23T27,T31040104000462TAP1
 361  3 54          BCE   ALFOPD,0001&X1,@                                         8  1335  B S26 0|1 @          47
 362  3 55          BWZ   SK1,0001&X1,2                                            8  1343  V T55 0|1 2          47
 363  3 56          B     STEP                                                     4  1351  B S08                47
 364  3 57   SK1    SW    ACTADD                                                   4  1355  , G86                47
 365  3 58          B     STEP                                                     4  1359  B S08                47
 366  3 59   GAP1   BWZ   GAP3,COMMSW,1                                            8  1363  V T82 G85 1          47
BS260|1@VT550|12BS08,G86BS08VT82G851   L036T70,T43T51,T55T59,T63040104000472TAP1
 367  3 60   GAP2   A     K1,X1                                                    7  1371  A E19 089            48
 368  3 61          B     GAP                                                      4  1378  B T00                48
 369  3 62   GAP3   BCE   GAP4,0002&X1,                                            8  1382  B T94 0|2            48
 370  3 63          B     GAP2                                                     4  1390  B T71                48
 371  3 64   GAP4   C     OPER-001,KBCE                                            7  1394  C F22 G82            48
 372  3 65          BE    USE60                                                    5  1401  B U10 S              48
 373  3 66          B     ANALEX                                                   4  1406  B V98                48
AE19089BT00BT940|2 BT71CF22G82BU10SBV98L039U09,T78T82,T90T94,U01U06104000482TAP1
 374  3 67   USE60  MCW   K60,X2                                                   7  1410  M E37 094            49
 375  3 68          SW    0001&X1                                                  4  1417  , 0|1                49
 376  3 69          CW    ACTADD                                                   4  1421  ) G86                49
 377  3 70          B     STEP                                                     4  1425  B S08                49
 378  3 71   PLUS   BCE   STEP,0000&X1,&                                           8  1429  B S08 0|0 &          49
 379  3 72          B     STORE                                                    4  1437  B W13                49
 380  3 73          A     K10,X2                                                   7  1441  A E27 094            49
ME37094,0|1)G86BS08BS080|0&BW13AE27094 L038U47,U17U21,U25U29,U37U41104000492TAP1
 381  3 74          A     MINUS,X1                                                 7  1448  A E50 089            50
 382  3 75          B     FIRST                                                    4  1455  B T27                50
 383  3 76   AREA   B     STORE                                                    4  1459  B W13                50
 384  3 77          SW    0001&X1,PARAMT&008&X2                                    7  1463  , 0|1 G!8            50
 385  3 78          BCE   WTOBAD,X2-001,3                                          8  1470  B V75 093 3          50
 386  3 79          MCW   W,AADDR                                                  7  1478  M H12 F86            50
AE50089BT27BW13,0|1G!8BV750933MH12F86  L037U84,U55U59,U63U70,U78040104000502TAP1
 387  3 80   TESTW  BCE   SINGLE,0002&X1,,                                         8  1485  B V19 0|2 ,          51
 388  3 81          BCE   SINGLE,0002&X1,                                          8  1493  B V19 0|2            51
 389  3 82   DOUBLE MCW   0002&X1,PARAMT&009&X2                                    7  1501  M 0|2 G!9            51
 390  3 83          A     K1,X1                                                    7  1508  A E19 089            51
 391  3 84          B     SINGLE&007                                               4  1515  B V26                51
BV190|2,BV190|2 M0|2G!9AE19089BV26     L034V18,U93V01,V08V15,040040104000512TAP1
 392  3 85   SINGLE MCW   0001&X1,PARAMT&009&X2                                    7  1519  M 0|1 G!9            52
 393                C     PARAMT&9&X2,@53@                                         7  1526  C G!9 H96            52
 394                BH    *&5                                                      5  1533  B V42 U              52
 395                SW    ERRPOS                                                   4  1538  , F91                52
 396  3 86          A     PARAMT&009&X2,LITCNT                                     7  1542  A G!9 F95            52
 397  3 87          A     K1,X1                                                    7  1549  A E19 089            52
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 SEQ PG LIN  LABEL  OP    OPERANDS                                            SFX CT  LOCN  INSTRUCTION TYPE  CARD
M0|1G!9CG!9H96BV42U,F91AG!9F95AE19089  L037V55,V26V33,V38V42,V49040104000522TAP1
 398  3 88          BCE   ANALEX,0001&X1,                                          8  1556  B V98 0|1            53
 399  3 89          A     K1,X1                                                    7  1564  A E19 089            53
 400  3 90          B     GAP                                                      4  1571  B T00                53
 401  3 91   WTOBAD MCW   W,BADDR                                                  7  1575  M H12 F87            53
 402  3 92          B     TESTW                                                    4  1582  B U85                53
 403  3 93   END    BWZ   GETDM,DMOD,1                                             8  1586  V W02 H38 1          53
BV980|1 AE19089BT00MH12F87BU85VW02H381 L038V93,V64V71,V75V82,V86040104000532TAP1
 404  3 94          B     STORE                                                    4  1594  B W13                54
 405  3 95   ANALEX B     0000                                                     4  1598  B 000                54
 406  3 96   GETDM  LCA   0000&X1,PARAMT&060                                       7  1602  L 0|0 G60            54
 407  3 97          B     ANALEX                                                   4  1609  B V98                54
 408  3 98   STORE  SBR   STEXIT&003                                               4  1613  H X77                54
 409  3 99          BWZ   ACTUAL,ACTADD,1                                          8  1617  V X78 G86 1          54
 410                BW    *&12,KONST                                               8  1625  V W44 E47 1          54
BW13B000L0|0G60BV98HX77VX78G861VW44E471L039W32,V98W02,W09W13,W17W25104000542TAP1
 411  3 992         C     X3,@27@                                                  7  1633  C 099 H98            55
 412  3 993         B     *&8                                                      4  1640  B W51                55
 413  3 994         C     X3,@53@                                                  7  1644  C 099 H96            55
 414  3 995         BH    *&12                                                     5  1651  B W67 U              55
 415  3 996         MLC   @26@,X3                                                  7  1656  M I00 099            55
 416  3 998         SW    ERRPOS                                                   4  1663  , F91                55
C099H98BW51C099H96BW67UMI00099,F91     L034W66,W40W44,W51W56,W63040104000552TAP1
 417  4 00          MCW   X3,CHARCT                                                7  1667  M 099 G84            56
 418  4 01          A     X2,X3                                                    7  1674  A 094 099            56
 419  4 02          LCA   0000&X1,PARAMT&X3                                        7  1681  L 0|0 G?0            56
 420  4 03          BCE   TSTLIT,X2-001,0                                          8  1688  B Y16 093 0          56
 421  4 04          SW    STEXIT&001                                               4  1696  , X75                56
M099G84A094099L0|0G?0BY160930,X75      L033W99,W74W81,W88W96,040040104000562TAP1
 422  4 05          BCE   TSTLIT,X2-001,3                                          8  1700  B Y16 093 3          57
 423  4 06          LCA   CHARCT,PARAMT&009&X2                                     7  1708  L G84 G!9            57
 424  4 07          SW    STEXIT&002                                               4  1715  , X76                57
 425  4 08   UPDAT  MCW   I99,X3                                                   7  1719  M E46 099            57
 426  4 09          A     K1,X1                                                    7  1726  A E19 089            57
BY160933LG84G!9,X76ME46099AE19089      L033X32,X08X15,X19X26,040040104000572TAP1
 427  4 10          BWZ   STEXIT-007,STEXIT&002,1                                  8  1733  V X67 X76 1          58
 428  4 11          BWZ   SETBAD,STEXIT&001,1                                      8  1741  V X60 X75 1          58
 429  4 12          MCW   ADDR,AADDR                                               7  1749  M G95 F86            58
 430  4 13          B     STEXIT                                                   4  1756  B X74                58
 431  4 14   SETBAD MCW   ADDR,BADDR                                               7  1760  M G95 F87            58
VX67X761VX60X751MG95F86BX74MG95F87     L034X66,X41X49,X56X60,040040104000582TAP1
 432  4 15          CW    STEXIT&001,STEXIT&002                                    7  1767  ) X75 X76            59
 433  4 16   STEXIT B     0000                                                     4  1774  B 000                59
 434  4 17   ACTUAL SW    PARAMT&X2                                                4  1778  , G!0                59
 435  4 18          A     0000&X1,PARAMT&004&X2                                    7  1782  A 0|0 G!4            59
 436  4 19          MCW   A,ADDR                                                   7  1789  M H07 G95            59
 437  4 20          BCE   *&005,X2-001,3                                           8  1796  B Y08 093 3          59
)X75X76B000,G!0A0|0G!4MH07G95BY080933  L037Y03,X74X78,X82X89,X96040104000592TAP1
 438  4 21          B     UPDAT                                                    4  1804  B X19                60
 439  4 22          SW    STEXIT&001                                               4  1808  , X75                60
 440  4 23          B     UPDAT                                                    4  1812  B X19                60
 441  4 24   TSTLIT BCE   ALFLIT,PARAMT&X2,@                                       8  1816  B Z45 G!0 @          60
 442  4 25          BCE   LITERL,PARAMT&X2,&                                       8  1824  B Y81 G!0 &          60
 443  4 26          BCE   LITERL,PARAMT&X2,-                                       8  1832  B Y81 G!0 -          60
BX19,X75BX19BZ45G!0@BY81G!0&BY81G!0-   L036Y39,Y08Y12,Y16Y24,Y32040104000602TAP1
 444  4 27          C     K6,CHARCT                                                7  1840  C E24 G84            61
 445  4 28          BL    *&012                                                    5  1847  B Y63 T              61
 446  4 29          SW    ERRPOS                                                   4  1852  , F91                61
 447  4 30          MCW   K5,CHARCT                                                7  1856  M E22 G84            61
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 SEQ PG LIN  LABEL  OP    OPERANDS                                              SFX CT  LOCN  INSTRUCTION TYPE  CARD
 448  4 31          LCA   CHARCT,PARAMT&009&X2                                       7  1863  L G84 G!9           61
 449  4 32          MCW   S,ADDR                                                     7  1870  M H06 G95           61
CE24G84BY63T,F91ME22G84LG84G!9MH06G95  L037Y76,Y47Y52,Y56Y63,Y70040104000612TAP1
 450  4 33          B     UPDAT                                                      4  1877  B X19               62
 451  4 34   LITERL BCE   RECURS,PARAMT&001&X2,&                                     8  1881  B Z30 G!1 &         62
 452  4 35          BCE   RECURS,PARAMT&001&X2,-                                     8  1889  B Z30 G!1 -         62
 453  4 36          BWZ   LITNUM,PARAMT&001&X2,2                                     8  1897  V Z56 G!1 2         62
 454  4 37   LTADCN A     K3,LITCNT                                                  7  1905  A E21 F95           62
BX19BZ30G!1&BZ30G!1-VZ56G!12AE21F95    L035Z11,Y81Y89,Y97Z05,040040104000622TAP1
 455                MLC   @  @,CHARCT                                                7  1912  M I02 G84           63
 456  4 39          MCW   C,ADDR                                                     7  1919  M H11 G95           63
 457  4 40          B     CNTLIT&007                                                 4  1926  B Z74               63
 458         RECURS SW    ERRPOS                                                     4  1930  , F91               63
 459                MCW   S,ADDR                                                     7  1934  M H06 G95           63
 460                B     UPDAT                                                      4  1941  B X19               63
MI02G84MH11G95BZ74,F91MH06G95BX19      L033Z44,Z19Z26,Z30Z34,Z41040104000632TAP1
 461  4 55   ALFLIT MCW   F,ADDR                                                     7  1945  M H08 G95           64
 462  4 56          B     MOVENM                                                     4  1952  B E87               64
 463  4 57   LITNUM MCW   L,ADDR                                                     7  1956  M H09 G95           64
 464  4 58          B     CNTLIT                                                     4  1963  B Z67               64
 465  4 59   CNTLIT A     CHARCT,LITCNT                                              7  1967  A G84 F95           64
 466  4 60          BWZ   *&012,KONST,1                                              8  1974  V Z93 E47 1         64
MH08G95BE87MH09G95BZ67AG84F95VZ93E471  L037Z81,Z52Z56,Z63Z67,Z74040104000642TAP1
 467  4 61          LCA   CHARCT,PARAMT&029&X2                                       7  1982  L G84 GK9           65
 468  4 62          B     UPDAT                                                      4  1989  B X19               65
 469  4 63          LCA   CHARCT,PARAMT&059                                          7  1993  L G84 G59           65
 470  4 64          CW    KONST                                                      4  2000  ) E47               65
 471  4 65          B     UPDAT                                                      4  2004  B X19               65
 472  4 66   *                   PROCESS DA HEADER
 473  4 67   DALINE MCW   K20,X1                                                     7  2008  M E30 089           65
LG84GK9BX19LG84G59)E47BX19ME30089      L033!14,Z89Z93,!00!04,!08040104000652TAP1
 474  4 68          MCW   ZEROS,X2                                                   7  2015  M G79 094           66
 475  4 69          MCW   I99,X3                                                     7  2022  M E46 099           66
 476  4 70          CW    COMMA1&009,ANALDA&002                                      7  2029  ) J31 !42           66
 477  4 71          CW    RECORD                                                     4  2036  ) F05               66
 478  4 72   ANALDA BCE   X,0001&X1,X                                                8  2040  B !90 0|1 X         66
MG79094ME46099)J31!42)F05B!900|1X      L033!47,!22!29,!36!40,040040104000662TAP1
 479  4 73          BCE   COMMA1,0001&X1,,                                           8  2048  B J22 0|1 ,         67
 480  4 74          BCE   END1,0001&X1,                                              8  2056  B J68 0|1           67
 481  4 75   STEP1  A     K1,X1                                                      7  2064  A E19 089           67
 482  4 76          A     K1,X3                                                      7  2071  A E19 099           67
 483  4 77          BWZ   ANALDA&008,ANALDA&002,1                                    8  2078  V !48 !42 1         67
BJ220|1,BJ680|1 AE19089AE19099V!48!421 L038!85,!56!64,!71!78,040040104000672TAP1
 484  4 78          B     ANALDA                                                     4  2086  B !40               68
 485  4 79   X      LCA   0000&X1,PARAMT&009&X2                                      7  2090  L 0|0 G!9           68
 486  4 80          MCW   I98,X3                                                     7  2097  M E43 099           68
 487  4 81          A     K10,X2                                                     7  2104  A E27 094           68
 488  4 82          SW    0002&X1,ANALDA&002                                         7  2111  , 0|2 !42           68
 489  4 83          B     STEP1                                                      4  2118  B !64               68
B!40L0|0G!9ME43099AE27094,0|2!42B!64   L036J21,!90!97,J04J11,J18040104000682TAP1
 490         COMMA1 BW    BXLOK,*&2                                                  8  2122  V J50 J31 1         69
 491  4 85          SW    *-002                                                      4  2130  , J31               69
 492                BW    *&5,ANALDA&2                                               8  2134  V J46 !42 1         69
 493                SW    ERRPOS                                                     4  2142  , F91               69
 494  4 86          B     X                                                          4  2146  B !90               69
 495         BXLOK  A     X2,X3                                                      7  2150  A 094 099           69
VJ50J311,J31VJ46!421,F91B!90A094099    L035J56,J30J34,J42J46,J50040104000692TAP1
 496  4 88          LCA   0000&X1,PARAMT&X3                                          7  2157  L 0|0 G?0           70
 497  4 89          B     X&007                                                      4  2164  B !97               70
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                         1401 TWO-TAPE AUTOCODER, PHASE 1 - JULY 20, 1962 RBR       2TAP1              PAGE    9

 SEQ PG LIN  LABEL  OP    OPERANDS                                           SFX CT  LOCN  INSTRUCTION TYPE  CARD
 498  4 90   END1   BWZ   *&012,COMMA1&009,1                                      8  2168  V J87 J31 1         70
 499  4 91          LCA   0000&X1,PARAMT&009&X2                                   7  2176  L 0|0 G!9           70
 500  4 92          B     *&015                                                   4  2183  B K01               70
 501  4 93          A     X2,X3                                                   7  2187  A 094 099           70
L0|0G?0B!97VJ87J311L0|0G!9BK01A094099  L037J93,J64J68,J76J83,J87040104000702TAP1
 502  4 94          LCA   0000&X1,PARAMT&X3                                       7  2194  L 0|0 G?0           71
 503  4 95   CALCDA MCW   ZEROS,HOLD                                              7  2201  M G79 G92           71
 504  4 96          MCW   PARAMT&019,HOLD                                         7  2208  M G19 G92           71
 505  4 97          MCW   ZEROS,X1                                                7  2215  M G79 089           71
 506  4 98          A     PARAMT&016,X1                                           7  2222  A G16 089           71
L0|0G?0MG79G92MG19G92MG79089AG16089    L035K28,K01K08,K15K22,040040104000712TAP1
 507  4 99          MZ    ZONE&X1,HOLD-002                                        7  2229  Y EV6 G90           72
 508  5 00          MCW   HOLD,LITCNT                                             7  2236  M G92 F95           72
 509  5 01          MCW   ZEROS,ADDR                                              7  2243  M G79 G95           72
 510  5 02          MCW   PARAMT&009,ADDR                                         7  2250  M G09 G95           72
 511  5 03   DECR   S     K1,ADDR                                                 7  2257  S E19 G95           72
YEV6G90MG92F95MG79G95MG09G95SE19G95    L035K63,K36K43,K50K57,040040104000722TAP1
 512  5 04          C     ZEROPL,ADDR                                             7  2264  C H15 G95           73
 513  5 05          BE    *&012                                                   5  2271  B K87 S             73
 514  5 06          A     HOLD,LITCNT                                             7  2276  A G92 F95           73
 515  5 07          B     DECR                                                    4  2283  B K57               73
 516  5 08          MCW   LITCNT,LOCCNT                                           7  2287  M F95 G89           73
 517  5 09          MCW   ZEROS,X1                                                7  2294  M G79 089           73
CH15G95BK87SAG92F95BK57MF95G89MG79089  L037L00,K71K76,K83K87,K94040104000732TAP1
 518  5 10   SCANDA BCE   INCXNG,PARAMT&020&X1,X                                  8  2301  B L44 GS0 X         74
 519  5 11          BCE   INCRMK,PARAMT&020&X1,|                                  8  2309  B L80 GS0 |         74
 520  5 12          BCE   INCGMK,PARAMT&020&X1,G                                  8  2317  B M09 GS0 G         74
 521  5 13   TSTNXT BCE   SKIP5,X1-001,4                                          8  2325  B M31 088 4         74
 522  5 14          A     K10,X1                                                  7  2333  A E27 089           74
BL44GS0XBL80GS0|BM09GS0GBM310884AE27089L039L39,L09L17,L25L33,040040104000742TAP1
 523  5 15          B     SCANDA                                                  4  2340  B L01               75
 524  5 16   INCXNG MCW   K1,ACTOP                                                7  2344  M E19 F96           75
 525  5 17          MCW   ZEROS,X2                                                7  2351  M G79 094           75
 526  5 18          SW    PARAMT&021&X1                                           4  2358  , GS1               75
 527  5 19          A     PARAMT&021&X1,X2                                        7  2362  A GS1 094           75
 528  5 20          MZ    ZONE&X2,ACTOP                                           7  2369  Y EN6 F96           75
BL01ME19F96MG79094,GS1AGS1094YEN6F96   L036L75,L44L51,L58L62,L69040104000752TAP1
 529  5 21          B     TSTNXT                                                  4  2376  B L25               76
 530  5 22   INCRMK A     PARAMT&009,LITCNT                                       7  2380  A G09 F95           76
 531  5 23          LCA   K1,PARAMT&60                                            7  2387  L E19 G60           76
 532  5 24          MCW   R,PARAMT&020&X1                                         7  2394  M H37 GS0           76
 533  5 25          SW    ERRPOS-002                                              4  2401  , F89               76
 534  5 26          B     TSTNXT                                                  4  2405  B L25               76
 535         INCGMK SW    ERRPOS-1                                                4  2409  , F90               76
BL25AG09F95LE19G60MH37GS0,F89BL25,F90  L037M12,L80L87,L94M01,M05M09104000762TAP1
 536                A     K1,LITCNT                                               7  2413  A E19 F95           77
 537  5 29          LCA   K1,PARAMT&67                                            7  2420  L E19 G67           77
 538  5 30          B     TSTNXT                                                  4  2427  B L25               77
 539         SKIP5  SW    DAON                                                    4  2431  , H40               77
 540  5 32          B     PUTRCD                                                  4  2435  B |21               77
 541  5 33   NOREAD CW    DAON                                                    4  2439  ) H40               77
 542                MLC   @ @,PARAMT&59                                           7  2443  M H81 G59           77
AE19F95LE19G67BL25,H40B|21)H40MH81G59  L037M49,M20M27,M31M35,M39M43104000772TAP1
 543                SW    PARAMT&65                                               4  2450  , G65               78
 544  5 34   *                   PROCESS DA SUBSEQUENT ENTRY
 545  5 35          CS    0080                                                    4  2454  / 080               78
 546  5 36          CW    RECORD                                                  4  2458  ) F05               78
 547  5 37          SW    0006,0021                                               7  2462  , 006 021           78
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 SEQ PG LIN  LABEL  OP    OPERANDS                                            SFX CT  LOCN  INSTRUCTION TYPE  CARD
 548  5 38          SW    0001,0016                                                7  2469  , 001 016           78
 549                SW    RECORD&75                                                4  2476  , F80               78
 550  5 39          MCW   BLANKS,PARAMT&039                                        7  2480  M H05 G39           78
,G65/080)F05,006021,001016,F80MH05G39  L037M86,M54M58,M62M69,M76M80104000782TAP1
 551  5 40          MCW   BLANKS,PARAMT&029                                        7  2487  M H05 G29           79
 552  5 41          R                                                              1  2494  1                   79
 553                SS    1                                                        2  2495  K 1                 79
 554                BCE   BYPCMT,6,*                                               8  2497  B R43 006 *         79
 555  5 43          BCE   *&005,0016,                                              8  2505  B N17 016           79
 556  5 44          B     LASTSB                                                   4  2513  B O77               79
 557  5 45          MCW   K20,X1                                                   7  2517  M E30 089           79
MH05G291K1BR43006*BN17016 BO77ME30089  L037N23,M94M95,M97N05,N13N17104000792TAP1
 558  5 46          MCW   K20,X2                                                   7  2524  M E30 094           80
 559  5 47          MCW   0080,RECORD&079                                          7  2531  M 080 F84           80
 560                CHAIN 4                                                                           MACRO
 561                MCW                                                            1  2538  M         GEN       80
 562                MCW                                                            1  2539  M         GEN       80
 563                MCW                                                            1  2540  M         GEN       80
 564                MCW                                                            1  2541  M         GEN       80
 565  5 51   ANALSB BCE   COMMA2,0001&X1,,                                         8  2542  B N69 0|1 ,         80
ME30094M080F84MMMMBN690|1,             L026N49,N31N38,N39N40,N41N42104000802TAP1
 566  5 52          BCE   END2,0001&X1,                                            8  2550  B N91 0|1           81
 567  5 53   STEP2  A     K1,X1                                                    7  2558  A E19 089           81
 568  5 54          B     ANALSB                                                   4  2565  B N42               81
 569  5 55   COMMA2 LCA   0000&X1,PARAMT&009&X2                                    7  2569  L 0|0 G!9           81
 570  5 56          SW    0002&X1                                                  4  2576  , 0|2               81
 571  5 57          A     K10,X2                                                   7  2580  A E27 094           81
BN910|1 AE19089BN42L0|0G!9,0|2AE27094  L037N86,N58N65,N69N76,N80040104000812TAP1
 572  5 58          B     STEP2                                                    4  2587  B N58               82
 573  5 59   END2   LCA   0000&X1,PARAMT&009&X2                                    7  2591  L 0|0 G!9           82
 574  5 60          MCW   ZEROS,LITCNT                                             7  2598  M G79 F95           82
 575  5 61          MCW   ZEROS,LOCATN                                             7  2605  M G79 F99           82
 576  5 62          A     PARAMT&009&X2,LOCATN                                     7  2612  A G!9 F99           82
 577  5 63          A     MINUS,LOCATN                                             7  2619  A E50 F99           82
BN58L0|0G!9MG79F95MG79F99AG!9F99AE50F99L039O25,N91N98,O05O12,O19040104000822TAP1
 578  5 64          ZS    PARAMT&29,XHOLD                                          7  2626  ! G29 I42           83
 579  5 65          A     PARAMT&39,XHOLD                                          7  2633  A G39 I42           83
 580  5 66          A     K1,XHOLD                                                 7  2640  A E19 I42           83
 581  5 67          BWZ   *&12,XHOLD,K                                             8  2647  V O66 I42 K         83
 582  5 68          MLC   XHOLD,LITCNT                                             7  2655  M I42 F95           83
!G29I42AG39I42AE19I42VO66I42KMI42F95   L036O61,O33O40,O47O55,040040104000832TAP1
 583  5 681  3942   DCW   #4                                                       4  3942                      84
 584  5 682  XHOLD  EQU   3942                                                        3942
                                       L004I42,040040,040040,040040104000842TAP1
 585  5 69          B     SETHO                                                    4  2662  B E61               85
 586  5 70          MLC   ZEROS,LITCNT                                             7  2666  M G79 F95           85
 587  5 71          B     SETHO                                                    4  2673  B E61               85
 588         LASTSB MCW   BLANKS,RECORD&79                                         7  2677  M H05 F84           85
 589                LCA   BLANKS,RECORD&10                                         7  2684  L H05 F15           85
 590                CW    RECORD&1                                                 4  2691  ) F06               85
BE61MG79F95BE61MH05F84LH05F15)F06      L033O94,O66O73,O77O84,O91040104000852TAP1
 591                MCW   @ @,RECORD                                               7  2695  M H81 F05           86
 592                BWZ   INSRMK,ERRPOS-2,1                                        8  2702  V P22 F89 1         86
 593  5 73          BWZ   INSGMK,ERRPOS-001,1                                      8  2710  V Q71 F90 1         86
 594  5 74          B     SETPAR                                                   4  2718  B 444               86
 595  5 75   INSRMK CW    ERRPOS-002                                               4  2722  ) F89               86
 596  5 76          MCW   ZEROS,LOCATN                                             7  2726  M G79 F99           86
MH81F05VP22F891VQ71F901B444)F89MG79F99 L038P32,P02P10,P18P22,P26040104000862TAP1
 597  5 77          MCW   ZEROS,ADDR                                               7  2733  M G79 G95           87
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 SEQ PG LIN  LABEL  OP    OPERANDS                                            SFX CT  LOCN  INSTRUCTION TYPE  CARD
 598  5 78          MCW   ZEROS,HOLD                                               7  2740  M G79 G92           87
 599  5 79          MCW   PARAMT&019,ADDR                                          7  2747  M G19 G95           87
 600  5 80          MCW   PARAMT&009,HOLD                                          7  2754  M G09 G92           87
 601  5 81          CS    PARAMT&060                                               4  2761  / G60               87
 602                CS    RECORD&74                                                4  2765  / F79               87
MG79G95MG79G92MG19G95MG09G92/G60/F79   L036P68,P40P47,P54P61,P65040104000872TAP1
 603  5 83          SW    PARAMT                                                   4  2769  , G00               88
 604                LCA   @DC   @,RECORD&19                                        7  2773  L I07 F24           88
 605  5 85          LCA   ALFRM,PARAMT&002                                         7  2780  L H36 G02           88
 606                MLC   @001@,LITCNT                                             7  2787  M I10 F95           88
 607  5 87          LCA   ALFRM,RECORD&022                                         7  2794  L H36 F27           88
 608  5 88          LCA   K1,PARAMT&059                                            7  2801  L E19 G59           88
,G00LI07F24LH36G02MI10F95LH36F27LE19G59L039Q07,P73P80,P87P94,Q01040104000882TAP1
 609  5 89          LCA   @RMARK@,PARAMT&64                                        7  2808  L I15 G64           89
 610  5 90          SW    ALFGM                                                    4  2815  , H33               89
 611  5 91   RMLOOP A     ADDR,LOCATN                                              7  2819  A G95 F99           89
 612                A     @1@,LOCCNT                                               7  2826  A H91 G89           89
 613  5 92          B     PUTRCD&029                                               4  2833  B |50               89
 614  5 94   RMBACK S     K1,HOLD                                                  7  2837  S E19 G92           89
LI15G64,H33AG95F99AH91G89B|50SE19G92   L036Q43,Q15Q19,Q26Q33,Q37040104000892TAP1
 615  5 945         A     K1,LOCATN                                                7  2844  A E19 F99           90
 616  5 95          C     ZEROPL,HOLD                                              7  2851  C H15 G92           90
 617  5 96          BU    RMLOOP                                                   5  2858  B Q19 /             90
 618  5 97          CW    ALFGM                                                    4  2863  ) H33               90
 619                B     LASTSB                                                   4  2867  B O77               90
 620  5 99   INSGMK CS    PARAMT&060                                               4  2871  / G60               90
 621  5 995         CW    ERRPOS-1                                                 4  2875  ) F90               90
AE19F99CH15G92BQ19/)H33BO77/G60)F90    L035Q78,Q51Q58,Q63Q67,Q71Q75104000902TAP1
 622  6 00          LCA   BLANKS,RECORD&029                                        7  2879  L H05 F34           91
 623  6 01          LCA   KDCW,RECORD&019                                          7  2886  L H20 F24           91
 624  6 02          LCA   ALFGM,PARAMT&002                                         7  2893  L H33 G02           91
 625  6 03          LCA   ALFGM,RECORD&022                                         7  2900  L H33 F27           91
 626                MLC   @001@,LITCNT                                             7  2907  M I10 F95           91
LH05F34LH20F24LH33G02LH33F27MI10F95    L035R13,Q86Q93,R00R07,040040104000912TAP1
 627  6 05          LCA   K1,PARAMT&059                                            7  2914  L E19 G59           92
 628  6 06          MCW   LOCCNT,LOCATN                                            7  2921  M G89 F99           92
 629  6 07          LCA   @GMARK@,PARAMT&64                                        7  2928  L I20 G64           92
 630  6 08          SW    CARDIN                                                   4  2935  , H41               92
 631  6 09          B     PUTRCD&14                                                4  2939  B |35               92
 632  6 091  BYPCMT LCA   SERIAL,80                                                7  2943  L E55 080           92
LE19G59MG89F99LI20G64,H41B|35LE55080   L036R49,R21R28,R35R39,R43040104000922TAP1
 633                A     @1@,SERIAL                                               7  2950  A H91 E55           93
 634                WTW   1,1                                                      8  2957  L %U1 001 W         93
 635                BER   TPERR                                                    5  2965  B 201 L             93
 636                BEF   *&1                                                      5  2970  B R75 K             93
 637                B     NOREAD                                                   4  2975  B M39               93
 638  6 10   *                   CONSTANTS - DCW AND DC
 639         CONST  MCW   K21,X1                                                   7  2979  M E33 089           93
AH91E55L%U1001WB201LBR75KBM39ME33089   L036R85,R57R65,R70R75,R79040104000932TAP1
 640  6 12          MCW   ZEROS,X2                                                 7  2986  M G79 094           94
 641  6 13          BCE   NUMBER,0021,#                                            8  2993  B ?63 021 #         94
 642  6 14          BCE   *&009,0021,@                                             8  3001  B ?17 021 @         94
 643  6 15          BWZ   CONTST,0021,2                                            8  3009  V A15 021 2         94
 644  6 16          SW    KONST                                                    4  3017  , E47               94
 645  6 17          B     PROPND                                                   4  3021  B |88               94
MG79094B?63021#B?17021@VA150212,E47B|88L039?24,R93?01,?09?17,?21040104000942TAP1
 646  6 18          CW    KONST                                                    4  3025  ) E47               95
 647                BCE   *&16,21,@                                                8  3029  B ?52 021 @         95
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 SEQ PG LIN  LABEL  OP    OPERANDS                                            SFX CT  LOCN  INSTRUCTION TYPE  CARD
 648  6 22          BCE   *&008,AADDR,L                                           8  3037  B ?52 F86 L          95
 649  6 23          MCW   K3,LITCNT                                               7  3045  M E21 F95            95
 650  6 24          MCW   LITCNT,PARAMT&059                                       7  3052  M F95 G59            95
 651  6 25          B     PUTRCD                                                  4  3059  B |21                95
)E47B?52021@B?52F86LME21F95MF95G59B|21 L038?62,?29?37,?45?52,?59040104000952TAP1
 652  6 26   NUMBER SW    0022                                                    4  3063  , 022                96
 653  6 27          BCE   *&012,0023,                                             8  3067  B ?86 023            96
 654  6 28          LCA   0023,PARAMT&009                                         7  3075  L 023 G09            96
 655  6 29          B     CONBCK&004                                              4  3082  B ?97                96
 656  6 30          LCA   0022,PARAMT&009                                         7  3086  L 022 G09            96
 657  6 31   CONBCK CW    KONST                                                   4  3093  ) E47                96
,022B?86023 L023G09B?97L022G09)E47     L034?96,?67?75,?82?86,?93040104000962TAP1
 658  6 32          A     PARAMT&9,LITCNT                                         7  3097  A G09 F95            97
 659  6 33          LCA   BLANKS,PARAMT&009                                       7  3104  L H05 G09            97
 660  6 34          B     PUTRCD                                                  4  3111  B |21                97
 661  6 35   CONTST BCE   CONEND,0001&X1,                                         8  3115  B A41 0|1            97
 662  6 36          A     K1,X1                                                   7  3123  A E19 089            97
AG09F95LH05G09B|21BA410|1 AE19089      L033A29,A04A11,A15A23,040040104000972TAP1
 663  6 37          A     K1,X2                                                   7  3130  A E19 094            98
 664  6 38          B     CONTST                                                  4  3137  B A15                98
 665  6 39   CONEND A     K1,X2                                                   7  3141  A E19 094            98
 666  6 40          MCW   X2,LITCNT                                               7  3148  M 094 F95            98
 667  6 41          LCA   X2,PARAMT&059                                           7  3155  L 094 G59            98
 668  6 42          LCA   0000&X1,PARAMT&X2                                       7  3162  L 0|0 G!0            98
AE19094BA15AE19094M094F95L094G59L0|0G!0L039A68,A37A41,A48A55,A62040104000982TAP1
 669  6 43          B     PUTRCD                                                  4  3169  B |21                99
 670  6 44   ENDSCE SW    RECORD                                                  4  3173  , F05                99
 671  6 45          B     PROPND                                                  4  3177  B |88                99
 672  6 46          B     ENDLIT                                                  4  3181  B B81                99
 673  6 47   ENDBCK CW    RECORD                                                  4  3185  ) F05                99
 674  6 48          WTW   1,RECORD                                                8  3189  L %U1 F05 W          99
 675  6 49          BER   TPERR                                                   5  3197  B 201 L              99
B|21,F05B|88BB81)F05L%U1F05WB201L      L033B01,A73A77,A81A85,A89A97104000992TAP1
 676  6 50          WTM   1                                                       5  3202  U %U1 M             100
 677  6 51          RWD   1                                                       5  3207  U %U1 R             100
 678  6 52          CW    RECRD2&171,PARTBL&90                                    7  3212  ) E18 G76           100
 679  6 53          MLC   @2@,SEEK                                                7  3219  M I21 125           100
 680  6 54          B     LOAD                                                    4  3226  B 100               100
 681  6 55   EXECUT SW    RECORD&1                                                4  3230  , F06               100
 682  6 56          B     PROPND                                                  4  3234  B |88               100
U%U1MU%U1R)E18G76MI21125B100,F06B|88   L036B37,B07B12,B19B26,B30B34104001002TAP1
 683  6 57          B     ENDLIT                                                  4  3238  B B81               101
 684  6 58   EXBACK CW    RECORD&1                                                4  3242  ) F06               101
 685  6 59          B     PUTRCD                                                  4  3246  B |21               101
 686  6 60   LTORG  B     PROPND                                                  4  3250  B |88               101
 687  6 61          MLC   SERIAL,RECORD&79                                        7  3254  M E55 F84           101
 688  6 62          A     @1@,SERIAL                                              7  3261  A H91 E55           101
 689  6 63          WTW   1,RECORD                                                8  3268  L %U1 F05 W         101
BB81)F06B|21B|88ME55F84AH91E55L%U1F05W L038B75,B42B46,B50B54,B61B68104001012TAP1
 690  6 64          BER   TPERR                                                   5  3276  B 201 L             102
 691  6 65   ENDLIT WTM   2                                                       5  3281  U %U2 M             102
 692  6 66          RWD   2                                                       5  3286  U %U2 R             102
 693  6 67   GETLIT RTW   2,RECRD2                                                8  3291  L %U2 C47 R         102
 694  6 68          BER   TPERR                                                   5  3299  B 201 L             102
 695  6 69          BEF   LITALL                                                  5  3304  B C21 K             102
B201LU%U2MU%U2RL%U2C47RB201LBC21K      L033C08,B81B86,B91B99,C04040104001022TAP1
 696  6 70          WTW   1,RECRD2                                                8  3309  L %U1 C47 W         103
 697  6 71          B     GETLIT                                                  4  3317  B B91               103
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 SEQ PG LIN  LABEL  OP    OPERANDS                                            SFX CT  LOCN  INSTRUCTION TYPE  CARD
 698  6 72   LITALL RWD   2                                                        5  3321  U %U2 R            103
 699  6 73          BW    ENDBCK,RECORD                                            8  3326  V A85 F05 1        103
 700  6 74          BW    EXBACK,RECORD&1                                          8  3334  V B42 F06 1        103
 701  6 75          B     RDCARD                                                   4  3342  B 417              103
 702  6 76          H                                                              1  3346  .                  103
L%U1C47WBB91U%U2RVA85F051VB42F061B417. L038C46,C17C21,C26C34,C42C46104001032TAP1
 703  6 77   RECRD2 DA    1X171,|                                                     3347   3518              104
 704  6 78   PAR          96                                                          3442             SBFLD
                                       L001001,C47040,040040,040040104001042TAP1
                    DC    @|@                                                      1  3518             RMARK  105
 705  6 79   *                  PROGRAM CONSTANTS
 706  6 80   K1     DCW   @1@                                                      1  3519                     105
 707  6 81   K2     DCW   @2@                                                      1  3520                     105
 708  6 82   K3     DCW   @3@                                                      1  3521                     105
 709  6 83   K5     DCW   @5@                                                      1  3522                     105
|1235                                  L005E22)E18E18,E19E20,E21E22104001052TAP1
 710  6 84   K6     DCW   @06@                                                     2  3524                     106
 711  6 85   K7     DCW   @7@                                                      1  3525                     106
 712  6 86   K10    DCW   @10@                                                     2  3527                     106
 713  6 87   K20    DCW   @020@                                                    3  3530                     106
 714  6 88   K21    DCW   @021@                                                    3  3533                     106
 715  6 89   K30    DCW   @30@                                                     2  3535                     106
 716  6 90   K60    DCW   @60@                                                     2  3537                     106
067100200213060                        L015E37,E25E26,E28E31,E34E36104001062TAP1
 717  6 91   K71    DCW   @071@                                                    3  3540                     107
 718  6 92   I98    DSA   &3998                                                    3  3543  I98                107
 719  6 93   I99    DSA   &3999                                                    3  3546  I99                107
 720  6 95   KONST  DC    @ @                                                      1  3547                     107
 721  6 96   MINUS  DCW   @I9I@                                                    3  3550                     107
 722         SERIAL DCW   @00101@                                                  5  3555                     107
 723  7 08   ZONE   DCW   @ @                                                      1  3556                     107
 724  7 09          DCW   @/@                                                      1  3557                     107
071I98I99 I9I00101 /                   L020E57,E41E44,E48E51,E56E57104001072TAP1
 725  7 10          DCW   @J@                                                      1  3558                     108
 726  7 11          DCW   @A@                                                      1  3559                     108
 727  7 29   *                  OUTPUT AREA & PARAMETER TABL
 728  7 30          ORG   *&X00                                                          3600
 729  7 31          ORG   *&5                                                            3605
 730  7 32   RECORD DA    1X80,|                                                      3605   3685              108
JA                                     L002E59,E59F05,040040,040040104001082TAP1
                    DC    @|@                                                      1  3685             RMARK  109
 731  7 33   PARTBL DA    1X90,|                                                      3686   3776              109
 732  7 34   AADDR        1,1                                                         3686             FIELD  109
 733  7 35   BADDR        2,2                                                         3687             FIELD  109
 734  7 36   ERRPOS       6                                                           3691             SBFLD
 735  7 37   ICOUNT       7,7                                                         3692             FIELD  109
|                                      L001F85)F85F85,F86F86,F87F92104001092TAP1
 736  7 38   LITCNT       8,10                                                        3695             FIELD  110
 737  7 39   ACTOP        11,11                                                       3696             FIELD  110
 738  7 40   LOCATN       12,14                                                       3699             FIELD  110
 739  7 41   PARAMT       15,15                                                       3700             FIELD  110
                                       L001001,F93F96,F97G00,040040104001102TAP1
                    DC    @|@                                                      1  3776             RMARK  111
 740  7 42   OPER   EQU   RECORD&18                                                   3623
 741         SAVLOC ORG   RECORD&15                                                   3777   3620
|                                      L001G76)G76G76,040040,040040104001112TAP1
 742                DCW   @JOB  @                                                  5  3624                     112
 743                ORG   SAVLOC                                                         3777
JOB                                    L005F24,040040,040040,040040104001122TAP1
 744  6 98   ZEROS  DCW   @000@                                                    3  3779                     113
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 SEQ PG LIN  LABEL  OP    OPERANDS                                            SFX CT  LOCN  INSTRUCTION TYPE  CARD
 745  6 99   KBCE   DCW   @BCE@                                                    3  3782                     113
 746  7 00   CHARCT DCW   @  @                                                     2  3784                     113
 747  7 01   COMMSW DC    @ @                                                      1  3785                     113
 748  7 02   ACTADD DC    @ @                                                      1  3786                     113
 749  7 03   LABEL  EQU   0011                                                        0011
 750  7 04   LOCCNT DCW   @333@                                                    3  3789                     113
 751  7 05   HOLD   DCW   @   @                                                    3  3792                     113
 752  7 06   ADDR   DCW   @   @                                                    3  3795                     113
 753  7 07   BLANKS DCW   @          @                                            10  3805                     113
000BCE    333                         L029H05,G80G83,G87G90,G93G96104001132TAP1
 754  7 12   S      DCW   @S@                                                      1  3806                     114
 755  7 13   A      DCW   @A@                                                      1  3807                     114
 756  7 14   F      DCW   @F@                                                      1  3808                     114
 757  7 15   L      DCW   @L@                                                      1  3809                     114
 758  7 16   M      DCW   @M@                                                      1  3810                     114
 759  7 17   C      DCW   @C@                                                      1  3811                     114
 760  7 18   W      DCW   @W@                                                      1  3812                     114
SAFLMCW                               L007H12,H07H08,H09H10,H11H12104001142TAP1
 761  7 20   ZEROPL DCW   @00?@                                                    3  3815                     115
 762  7 21   KDCW   DCW   @DCW  @                                                  5  3820                     115
 763  7 22   MLCWA  DCW   @MLCWA@                                                  5  3825                     115
 764  7 23   KLTORG DCW   @LTORG@                                                  5  3830                     115
 765  7 24   ALFGM  DCW   @@}@@                                                    3  3833                     115
 766  7 25   ALFRM  DCW   @@|@@                                                    3  3836                     115
 767  7 26   R      DCW   @R@                                                      1  3837                     115
00?DCW  MLCWALTORG@}@@|@R             L025H37,H16H21,H26H31,H34H37104001152TAP1
 768  7 27   DMOD   DC    @ @                                                      1  3838                     116
 769  7 28   PERCNT DCW   @%@                                                      1  3839                     116
 %                                    L002H39)H38H38,H39040,040040104001162TAP1
 770  7 43   3998   DCW   @}@                                                      1  3998                     117
 771  7 431  ORGA   ORG   3587                                                        3840   3587
}                                     L001I98,040040,040040,040040104001172TAP1
 772         MOVENM MN    1&X1,PARAMT&1&X3                                         7  3587  D 0|1 G?1          118
 773                B     CNTLIT                                                   4  3594  B Z67              118
 774                ORG   3561                                                               3561
D0|1G?1BZ67                           L011E97,E94040,040040,040040104001182TAP1
 775         SETHO  MLC   ZEROS,X1                                                 7  3561  M G79 089          119
 776                MN    PARAMT&6&X2,X1                                           7  3568  D G!6 089          119
 777                MZ    ZONE&X1,LOCATN-2                                         7  3575  Y EV6 F97          119
 778                B     SKIP5                                                    4  3582  B M31              119
 779                ORG   3923                                                               3923
MG79089DG!6089YEV6F97BM31             L025E85,E68E75,E82040,040040104001192TAP1
 780         PUTXXX A     @1@,SERIAL                                               7  3923  A H91 E55          120
 781                CW    LOCATN                                                   4  3930  ) F99              120
 782                B     PUTRCD&14                                                4  3934  B |35              120
 783                ORG   ORGA                                                               3840
AH91E55)F99B|35                       L015I37,I30I34,040040,040040104001202TAP1
       171   DAON   DCW   #01                                                      1  3840              AREA   121
       171   CARDIN       #01                                                      1  3841              AREA   121
       172   TWO          #01                                                      1  3842              AREA   121
       227                @DCW  @                                                  5  3847              LIT    121
       229                @DC   @                                                  5  3852              LIT    121
       231                @DA   @                                                  5  3857              LIT    121
       233                @LTORG@                                                  5  3862              LIT    121
   DCW  DC    DA    LTORG             L023H62,H41H42,H43H48,H53H58104001212TAP1
       235                @EX   @                                                  5  3867              LIT    122
       237                @JOB  @                                                  5  3872              LIT    122
       241                @END  @                                                  5  3877              LIT    122
                          @000@                                                    3  3880              LIT    122
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                          1401 TWO-TAPE AUTOCODER, PHASE 1 - JULY 20, 1962 RBR       2TAP1              PAGE   15

 SEQ PG LIN  LABEL  OP    OPERANDS                                            SFX CT  LOCN  INSTRUCTION TYPE  CARD
                          @ @                                                      1  3881              LIT    122
       249                @      @                                                 6  3887              LIT    122
                          @030@                                                    3  3890              LIT    122
EX   JOB  END  000       030           L028H90,H68H73,H78H81,H82H88104001222TAP1
                          @1@                                                      1  3891              LIT    123
                          @Y@                                                      1  3892              LIT    123
                          @N@                                                      1  3893              LIT    123
                          @#@                                                      1  3894              LIT    123
                          @53@                                                     2  3896              LIT    123
                          @27@                                                     2  3898              LIT    123
                          @26@                                                     2  3900              LIT    123
1YN#532726                             L010I00,H92H93,H94H95,H97H99104001232TAP1
                          @  @                                                     2  3902              LIT    124
       604                @DC   @                                                  5  3907              LIT    124
                          @001@                                                    3  3910              LIT    124
       609                @RMARK@                                                  5  3915              LIT    124
       629                @GMARK@                                                  5  3920              LIT    124
                          @2@                                                      1  3921              LIT    124
  DC   001RMARKGMARK2                  L021I21,I03I08,I11I16,I21040104001242TAP1
                                       N000000,040040,040040,040040B16701252TAP1
,015022)024056,029036,040047,0540611001,001008B001     ,001008B001     01262TAP2
,068072)063067/061039                                       ,001001104001272TAP2
 784  7 44          EX    SYSTEM                                                         B 167              125
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                         1401 TWO-TAPE AUTOCODER - PHASE 2 - JAN 8, 1962  RBR       2TAP2              PAGE   16

 SEQ PG LIN  LABEL  OP    OPERANDS                                         SFX CT  LOCN  INSTRUCTION TYPE  CARD
 785  7 45          JOB   1401 TWO-TAPE AUTOCODER - PHASE 2 - JAN 8, 1962  RBR
 786                ORG   167                                                             0167
 787                WTW   1,333                                                 8  0167  L %U1 333 W        128
 788                BER   *&5                                                   5  0175  B 184 L            128
 789                R     40                                                    4  0180  1 040              128
 790                BSP   1                                                     5  0184  U %U1 B            128
 791                SKP   1                                                     5  0189  U %U1 E            128
 792                B     SYSTEM                                                4  0194  B 167              128
 793                H                                                           1  0198  .                  128
 794  7 46          ORG   333                                                             0333
L%U1333WB184L1040U%U1BU%U1EB167.       L032198,175180,184189,194198104001282TAP2
 795  7 47          DCW   @2@                                                   1  0333                     129
 796  7 48          SW    3998                                                  4  0334  , I98              129
 797  7 49          LCA   3998,PARTBL&90                                        7  0338  L I98 G76          129
 798  7 493         LCA   @         @,14                                        7  0345  L M51 014          129
 799  7 496         SW    13,12                                                 7  0352  , 013 012          129
 800                CW    HADLIT#1                                              4  0359  ) M52              129
 801  7 50   GET    RTW   1,RECORD                                              8  0363  L %U1 F05 R        129
2,I98LI98G76LM51014,013012)M52L%U1F05R L038370,334338,345352,359363104001292TAP2
 802  7 51          BER   TPERR                                                 5  0371  B 201 L            130
 803  7 52          BEF   ENDPH2                                                5  0376  B U19 K            130
 804  7 54          BCE   PUT,RECORD&005,*                                      8  0381  B T83 F10 *        130
 805  7 55          BWZ   LITRCD,RECORD&003,1                                   8  0389  V /45 F08 1        130
 806                BW    TSTORG,HADLIT                                         8  0397  V W17 M52 1        130
B201LBU19KBT83F10*V/45F081VW17M521     L034404,376381,389397,040040104001302TAP2
 807  7 56          BWZ   PUT,PARAMT&065,1                                      8  0405  V T83 G65 1        131
 808  7 57   *                  CONVERT ACTUAL ADDRESSES TO MACH LANGUAGE
 809  7 58          MLC   @030@,X1                                              7  0413  M M55 089          131
 810  7 59          BCE   CONVRT,BADDR,A                                        8  0420  B U50 F87 A        131
 811  7 60          MLC   @000@,X1                                              7  0428  M M58 089          131
 812  7 61          BCE   CONVRT,AADDR,A                                        8  0435  B U50 F86 A        131
VT83G651MM55089BU50F87AMM58089BU50F86A L038442,413420,428435,040040104001312TAP2
 813  7 62          BCE   CONOUT,RECORD&5,                                      8  0443  B 556 F10          132
 814  7 63          BWZ   *&5,RECORD&5,2                                        8  0451  V 463 F10 2        132
 815  7 64          B     CONOUT                                                4  0459  B 556              132
 816  7 65          BCE   *&12,RECORD&6&X1,                                     8  0463  B 482 F/1          132
 817  7 66          A     @1@,X1                                                7  0471  A M59 089          132
 818  7 67          B     *-18                                                  4  0478  B 463              132
B556F10 V463F102B556B482F/1 AM59089B463L039481,451459,463471,478040104001322TAP2
 819  7 68          SW    ONE#1                                                 4  0482  , M60              133
 820  7 69          MLC   PARAMT&60,ONE                                         7  0486  M G60 M60          133
 821  7 70          BW    *&5,PARAMT&60                                         8  0493  V 505 G60 1        133
 822  7 71          CW    ONE                                                   4  0501  ) M60              133
 823  7 72          LCA   @00000     @,PARAMT&69                                7  0505  L M70 G69          133
 824  7 73          A     RECORD&5&X1,PARAMT&64                                 7  0512  A F/0 G64          133
,M60MG60M60V505G601)M60LM70G69AF/0G64  L037518,486493,501505,512040104001332TAP2
 825  7 74          MLC   @060@,X1                                              7  0519  M M73 089          134
 826  7 75          B     CONVRT                                                4  0526  B U50              134
 827  7 76          MLC   PARAMT&68,LOCATN                                      7  0530  M G68 F99          134
 828  7 77          MLC   ONE,PARAMT&60                                         7  0537  M M60 G60          134
 829  7 78          BW    *&5,ONE                                               8  0544  V 556 M60 1        134
 830  7 79          CW    PARAMT&60                                             4  0552  ) G60              134
 831  7 80   CONOUT NOP                                                         1  0556  N                  134
MM73089BU50MG68F99MM60G60V556M601)G60N L038556,526530,537544,552556104001342TAP2
 832  7 81          BCE   *&005,PARAMT,%                                        8  0557  B 569 G00 %        135
 833  7 82          B     *&008                                                 4  0565  B 576              135
 834  7 83          MCW   M,AADDR                                               7  0569  M H10 F86          135
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                          1401 TWO-TAPE AUTOCODER - PHASE 2 - JAN 8, 1962  RBR       2TAP2              PAGE   17

 SEQ PG LIN  LABEL  OP    OPERANDS                                          SFX CT  LOCN  INSTRUCTION TYPE  CARD
 835                BCE   OPEROK,OPER&1,                                         8  0576  B 624 F24          135
 836  7 85          C     OPER&001,KLTORG                                        7  0584  C F24 H30          135
 837                BE    OPEROK                                                 5  0591  B 624 S            135
B569G00%B576MH10F86B624F24 CF24H30B624SL039595,565569,576584,591040104001352TAP2
 838  7 87          C     OPER&001,MLCWA                                         7  0596  C F24 H25          136
 839                BE    OPEROK                                                 5  0603  B 624 S            136
 840                C     OPER&1,@CHAIN@                                         7  0608  C F24 M78          136
 841                BE    CHAIN                                                  5  0615  B S40 S            136
 842  7 89          B     NOOP                                                   4  0620  B 665              136
 843         OPEROK SW    OPER-3                                                 4  0624  , F20              136
 844  7 91          MCW   OPER,ENDOPT                                            7  0628  M F23 M41          136
CF24H25B624SCF24M78BS40SB665,F20MF23M41L039634,603608,615620,624628104001362TAP2
 845  7 92          MCW   ZEROS,X1                                               7  0635  M G79 089          137
 846  7 53   *                   TLU OP CODE
 847  7 93   TLUOP  C     OPTABL-003&X1,OPER                                     7  0642  C WY5 F23          137
 848  7 94          BE    HITOP                                                  5  0649  B 673 S            137
 849  7 95          A     K7,X1                                                  7  0654  A E25 089          137
 850  7 96          B     TLUOP                                                  4  0661  B 642              137
 851  7 97   NOOP   SW    ERRPOS-001                                             4  0665  , F90              137
 852  7 98          B     OPERND                                                 4  0669  B 913              137
MG79089CWY5F23B673SAE25089B642,F90B913 L038672,642649,654661,665669104001372TAP2
 853  7 99   HITOP  BCE   NOOP,OPTABL-002&X1,}                                   8  0673  B 665 WY6 }        138
 854  8 00          BWZ   DECLOP,OPTABL-002&X1,1                                 8  0681  V 974 WY6 1        138
 855  8 01   IMPROP MCW   OPTABL-002&X1,ACTOP                                    7  0689  M WY6 F96          138
 856  8 02          BCE   OPERND,OPTABL-001&X1,                                  8  0696  B 913 WY7          138
 857  8 03          BWZ   GENDMD,OPTABL-001&X1,1                                 8  0704  V 731 WY7 1        138
B665WY6}V974WY61MWY6F96B913WY7 V731WY71L039711,681689,696704,040040104001382TAP2
 858  8 04   HAVE*  SW    PARAMT&060,DMOD                                        7  0712  , G60 H38          139
 859  8 05          BCE   INSERT,PARAMT&060,                                     8  0719  B |19 G60          139
 860  8 06          B     OPERND                                                 4  0727  B 913              139
 861  8 07   GENDMD BWZ   DISK,OPTABL&X1,1                                       8  0731  V 825 WY8 1        139
 862  8 08          LCA   OPTABL-001&X1,PARAMT&060                               7  0739  L WY7 G60          139
,G60H38B|19G60 B913V825WY81LWY7G60     L034745,719727,731739,040040104001392TAP2
 863  8 09          BCE   OPERND,OPTABL&X1,                                      8  0746  B 913 WY8          140
 864  8 10          BCE   OPERND,AADDR,S                                         8  0754  B 913 F86 S        140
 865                BCE   OPERND,AADDR,M                                         8  0762  B 913 F86 M        140
 866  8 11          SW    PARAMT&009                                             4  0770  , G09              140
 867  8 12          MCW   OPTABL&X1,PARAMT&009                                   7  0774  M WY8 G09          140
B913WY8 B913F86SB913F86M,G09MWY8G09    L035780,754762,770774,040040104001402TAP2
 868  8 13          MCW   M,AADDR                                                7  0781  M H10 F86          141
 869  8 14   GENRET MCW   PARAMT&004,PARAMT&003                                  7  0788  M G04 G03          141
 870  8 15          MN    BLANKS,PARAMT&004                                      7  0795  D H05 G04          141
 871  8 16          MN                                                           1  0802  D                  141
 872  8 17          MCW   PERCNT,PARAMT                                          7  0803  M H39 G00          141
 873  8 18          MCW   PARAMT&009,PARAMT&001                                  7  0810  M G09 G01          141
MH10F86MG04G03DH05G04DMH39G00MG09G01   L036816,788795,802803,810040104001412TAP2
 874  8 185         CW    PARAMT&2                                               4  0817  ) G02              142
 875  8 19          B     SPACNT                                                 4  0821  B 914              142
 876         DISK   BCE   MOVES,AADDR,S                                          8  0825  B 888 F86 S        142
 877                MLC   PARAMT&29,PARAMT&59                                    7  0833  M G29 G59          142
 878                CHAIN 2                                                                       MACRO
 879                MLC                                                          1  0840  M           GEN    142
 880                MLC                                                          1  0841  M           GEN    142
 881                MLC   PARAMT&8,PARAMT&38                                     7  0842  M G08 G38          142
)G02B914B888F86SMG29G59MMMG08G38       L032848,821825,833840,841842104001422TAP2
 882         DISKEX MLC   AADDR,BADDR                                            7  0849  M F86 F87          143
 883  8 24          MCW   M,AADDR                                                7  0856  M H10 F86          143
 884  8 25          LCA   F,PARAMT&009                                           7  0863  L H08 G09          143
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                           1401 TWO-TAPE AUTOCODER - PHASE 2 - JAN 8, 1962  RBR       2TAP2              PAGE   18

 SEQ PG LIN  LABEL  OP    OPERANDS                                            SFX CT  LOCN  INSTRUCTION TYPE  CARD
 885  8 255         MCW   OPTABL&X1,PARAMT&4                                       7  0870  M WY8 G04          143
 886  8 26          LCA   OPTABL-001&X1,PARAMT&060                                 7  0877  L WY7 G60          143
 887  8 27          B     GENRET                                                   4  0884  B 788              143
MF86F87MH10F86LH08G09MWY8G04LWY7G60B788L039887,856863,870877,884040104001432TAP2
 888         MOVES  MLC   @|@,PARAMT&27                                            7  0888  M M79 G27          144
 889                MCM   PARAMT,PARAMT&30                                         7  0895  P G00 G30          144
 890                MLC   PARAMT&29,PARAMT&59                                      7  0902  M G29 G59          144
 891                B     DISKEX                                                   4  0909  B 849              144
 892  8 28   *                   CALCULATE INSTRUCTION COUNT
 893  8 29   OPERND NOP                                                            1  0913  N                  144
 894  8 30   SPACNT MCW   K1,ICOUNT                                                7  0914  M E19 F92          144
MM79G27PG00G30MG29G59B849NME19F92      L033920,895902,909913,914040104001442TAP2
 895  8 31   HAVEA  BCE   HAVEB,AADDR,                                             8  0921  B 936 F86          145
 896  8 32          A     K3,ICOUNT                                                7  0929  A E21 F92          145
 897  8 33   HAVEB  BCE   HAVED,BADDR,                                             8  0936  B 951 F87          145
 898  8 34          A     K3,ICOUNT                                                7  0944  A E21 F92          145
 899  8 35   HAVED  BWZ   CTDMOD,PARAMT&060,1                                      8  0951  V 963 G60 1        145
B936F86 AE21F92B951F87 AE21F92V963G601 L038958,929936,944951,040040104001452TAP2
 900  8 36   RELEAS B     XBIN                                                     4  0959  B P71              146
 901  8 37   CTDMOD B     XBCE                                                     4  0963  B P11              146
 902  8 371         NOP                                                            1  0967  N                  146
 903  8 372         NOP                                                            1  0968  N                  146
 904  8 373         NOP                                                            1  0969  N                  146
 905  8 38          B     CLEARX                                                   4  0970  B R01              146
 906  8 39   *                      SET UP LINKAGE TO SPECIAL
 907  8 40   *                           ROUTINES - ADDRESS O
 908  8 41   *                           FROM OP CODE TABLE
 909  8 42   DECLOP MCW   OPTABL&X1,*&004                                          7  0974  M WY8 984          146
BP71BP11NNNBR01MWY8984                 L022980,963967,968969,970974104001462TAP2
 910  8 43          B     0000                                                     4  0981  B 000              147
 911  8 44   *                      EXIT FOR DECLARATIVE AND
 912  8 45   *                           REQUIRING NO SPECIAL
 913  8 46   DECEXT B     PUT                                                      4  0985  B T83              147
 914  8 47   *                   CONTROL OPERATIONS
 915  8 48   CONTRL SW    RECORD                                                   4  0989  , F05              147
 916  8 49          B     PUT                                                      4  0993  B T83              147
 917  8 50   *                   DS DECLARATIVE
 918  8 51   DS     MCW   PARAMT&004,LITCNT                                        7  0997  M G04 F95          147
 919  8 52          B     PUT                                                      4  1004  B T83              147
 920  8 53   *                   DSA DECLARATIVE
 921  8 54   DSA    MCW   K3,LITCNT                                                7  1008  M E21 F95          147
B000BT83,F05BT83MG04F95BT83ME21F95     L034|14,985989,993997,|04|08104001472TAP2
 922  8 55          B     PUT                                                      4  1015  B T83              148
 923  8 56   *                        ROUTINE TO GET D-MODIFIER FOR INSTRUCTIONS
 924  8 57   *                             OF LESS THAN TWO OPERANDS
 925  8 58   INSERT C     OPER,@BCE @                                              7  1019  C F23 M83          148
 926  8 59          BE    OPERND                                                   5  1026  B 913 S            148
 927  8 60          C     OPER,@BBE @                                              7  1031  C F23 M87          148
 928  8 61          BE    OPERND                                                   5  1038  B 913 S            148
 929  8 62          BCE   *&5,PARAMT&60,                                           8  1043  B |55 G60          148
BT83CF23M83B913SCF23M87B913SB|55G60    L036|50,|19|26,|31|38,|43040104001482TAP2
 930  8 63          B     OPERND                                                   4  1051  B 913              149
 931  8 64          BCE   OPERND,PARAMT,                                           8  1055  B 913 G00          149
 932  8 65          BCE   GETA,PARAMT&30,                                          8  1063  B /08 G30          149
 933  8 66          MLC   @ @,BADDR                                                7  1071  M M88 F87          149
 934  8 67          BCE   *&12,PARAMT&31,                                          8  1078  B |97 G31          149
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                         1401 TWO-TAPE AUTOCODER - PHASE 2 - JAN 8, 1962  RBR       2TAP2             PAGE   19

 SEQ PG LIN  LABEL  OP    OPERANDS                                      SFX CT  LOCN  INSTRUCTION TYPE  CARD
B913B913G00 B/08G30 MM88F87B|97G31     L035|85,|55|63,|71|78,040040104001492TAP2
 935  8 68          MLC   PARAMT&34,PARAMT&60                                7  1086  M G34 G60          150
 936  8 69          B     OPERND                                             4  1093  B 913              150
 937  8 70          MLC   PARAMT&30,PARAMT&60                                7  1097  M G30 G60          150
 938  8 71          B     OPERND                                             4  1104  B 913              150
 939  8 72   GETA   MLC   @ @,AADDR                                          7  1108  M M88 F86          150
 940  8 73          BCE   *&12,PARAMT&1,                                     8  1115  B /34 G01          150
MG34G60B913MG30G60B913MM88F86B/34G01   L037/22,|93|97,/04/08,/15040104001502TAP2
 941  8 74          MLC   PARAMT&4,PARAMT&60                                 7  1123  M G04 G60          151
 942  8 75          B     OPERND                                             4  1130  B 913              151
 943  8 76          MLC   PARAMT,PARAMT&60                                   7  1134  M G00 G60          151
 944  8 77          B     OPERND                                             4  1141  B 913              151
 945  8 78   *                  SET UP LITERAL IDENTIFICATION
 946  8 79   LITRCD BCE   KAREA,AADDR,W                                      8  1145  B /88 F86 W        151
 947  8 80          BCE   KADCON,AADDR,C                                     8  1153  B S05 F86 C        151
MG04G60B913MG00G60B913B/88F86WBS05F86C L038/60,/30/34,/41/45,/53040104001512TAP2
 948  8 81          BCE   KADCON,AADDR,P                                     8  1161  B S05 F86 P        152
 949  8 815         BCE   RCURSV,AADDR,R                                     8  1169  B S16 F86 R        152
 950  8 82          LCA   @LIT  @,PARAMT&64                                  7  1177  L M93 G64          152
 951  8 83          B     KILLIT                                             4  1184  B P51              152
 952  8 84   KAREA  LCA   @AREA @,PARAMT&64                                  7  1188  L M98 G64          152
 953  8 85          B     PUT                                                4  1195  B T83              152
BS05F86PBS16F86RLM93G64BP51LM98G64BT83 L038/98,/69/77,/84/88,/95040104001522TAP2
 954  8 86   PREV   DCW   #6                                                 6  1204                     153
 955  8 87   KADCON LCA   @ADCON@,PARAMT&64                                  7  1205  L N03 G64          153
 956  8 88          B     PUT                                                4  1212  B T83              153
 957  8 881  RCURSV BW    *&9,RCURSV&9                                       8  1216  V S32 S25 1        153
 958  8 882         SW    RCURSV&9                                           4  1224  , S25              153
 959  8 883         B     KAREA-11                                           4  1228  B /77              153
 960  8 884         CW    RCURSV&9                                           4  1232  ) S25              153
      LN03G64BT83VS32S251,S25B/77)S25  L037S35,S05S12,S16S24,S28S32104001532TAP2
 961  8 885         B     KADCON                                             4  1236  B S05              154
 962         CHAIN  LCA   @MACRO@,PARAMT&64                                  7  1240  L N08 G64          154
 963                MLC   @ @,AADDR                                          7  1247  M M88 F86          154
 964                MLC   BLANKS,LOCATN                                      7  1254  M H05 F99          154
 965                WTW   2,RECORD                                           8  1261  L %U2 F05 W        154
 966                BER   TPERR                                              5  1269  B 201 L            154
BS05LN08G64MM88F86MH05F99L%U2F05WB201L L038S73,S40S47,S54S61,S69040104001542TAP2
 967                BEF   *&1                                                5  1274  B S79 K            155
 968                MLC   PARAMT&4,HOLD                                      7  1279  M G04 G92          155
 969                LCA   BLANKS,PARAMT&9                                    7  1286  L H05 G09          155
 970                LCA   @  @,RECORD&21                                     7  1293  L N10 F26          155
 971                MLC   BLANKS,RECORD&79                                   7  1300  M H05 F84          155
BS79KMG04G92LH05G09LN10F26MH05F84      L033T06,S79S86,S93T00,040040104001552TAP2
 972                MLC   BLANKS,RECORD&4                                    7  1307  M H05 F09          156
 973                MLC   @1@,ICOUNT                                         7  1314  M M59 F92          156
 974                LCA   PREVOP,OPER&1                                      7  1321  L N23 F24          156
 975                LCA   PREVAC,ACTOP                                       7  1328  L N24 F96          156
 976                LCA   @GEN  @,PARAMT&64                                  7  1335  L N15 G64          156
MH05F09MM59F92LN23F24LN24F96LN15G64    L035T41,T14T21,T28T35,040040104001562TAP2
 977         CHAIN1 WTW   2,RECORD                                           8  1342  L %U2 F05 W        157
 978                BER   TPERR                                              5  1350  B 201 L            157
 979                BEF   *&1                                                5  1355  B T60 K            157
 980                S     @1@,HOLD                                           7  1360  S M59 G92          157
 981                C     HOLD,@00?@                                         7  1367  C G92 N18          157
 982                BU    CHAIN1                                             5  1374  B T42 /            157
L%U2F05WB201LBT60KSM59G92CG92N18BT42/  L037T78,T50T55,T60T67,T74040104001572TAP2
 983                B     GET                                                4  1379  B 363              158
 984         PUT    MLC   OPER&1,PREVOP#5                                    7  1383  M F24 N23          158
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                          1401 TWO-TAPE AUTOCODER - PHASE 2 - JAN 8, 1962  RBR       2TAP2              PAGE   20

 SEQ PG LIN  LABEL  OP    OPERANDS                                      SFX CT  LOCN  INSTRUCTION TYPE  CARD
 985                MLC   ACTOP,PREVAC#1                                     7  1390  M F96 N24          158
 986                WTW   2,RECORD                                           8  1397  L %U2 F05 W        158
 987  8 90          BER   TPERR                                              5  1405  B 201 L            158
 988  8 91          BEF   *&1                                                5  1410  B U15 K            158
B363MF24N23MF96N24L%U2F05WB201LBU15K   L036U14,T83T90,T97U05,U10040104001582TAP2
 989  8 92          B     GET                                                4  1415  B 363              159
 990  8 93   ENDPH2 CW    PARTBL&90                                          4  1419  ) G76              159
 991  8 94          WTM   2                                                  5  1423  U %U2 M            159
 992  8 95          RWD   1                                                  5  1428  U %U1 R            159
 993  8 96          RWD   2                                                  5  1433  U %U2 R            159
 994  8 98          MLC   @3@,SEEK                                           7  1438  M N25 125          159
 995  8 99          B     LOADXX                                             4  1445  B 001              159
B363)G76U%U2MU%U1RU%U2RMN25125BO01     L034U48,U19U23,U28U33,U38U45104001592TAP2
 996  9 00          H                                                        1  1449  .                  160
 997  9 01   *                       ROUTINE TO CONVERT A 5 POSITION ACTUAL
 998  9 02   *                            ADDRESS OPERAND TO A MACHINE ADDRESS
 999  9 03   *                          * ADDRESS TAKEN FROM PARAMT&4&X1
1000  9 04   *                          * CONVERTED 3 POSITION ADDRESS PLACED
1001  9 05   *                            AT PARAMT&8&X1
1002  9 06   CONVRT SBR   CONEXT&3                                           4  1450  H V65              160
1003  9 07          SW    PARAMT&2&X1                                        4  1454  , G|2              160
1004  9 08          LCA   PARAMT&4&X1,PARAMT&8&X1                            7  1458  L G|4 G|8          160
1005  9 09          MLC   PARAMT&1&X1,ADDR-1                                 7  1465  M G|1 G94          160
1006  9 10          C     @00@,ADDR-1                                        7  1472  C N27 G94          160
1007  9 11          BE    CONEXT                                             5  1479  B V62 S            160
.HV65,G|2LG|4G|8MG|1G94CN27G94BV62S    L035U83,U50U54,U58U65,U72U79104001602TAP2
1008  9 12          SW    PARAMT&8&X1                                        4  1484  , G|8              161
1009  9 13   CONV1  S     @4@,ADDR-1                                         7  1488  S N28 G94          161
1010  9 14          BM    CONV2,ADDR-1                                       8  1495  V V14 G94 K        161
1011  9 15          A     @|0@,PARAMT&9&X1                                   7  1503  A N30 G|9          161
1012  9 16          B     CONV1                                              4  1510  B U88              161
1013  9 17   CONV2  A     @4@,ADDR-1                                         7  1514  A N28 G94          161
,G|8SN28G94VV14G94KAN30G|9BU88AN28G94  L037V20,U88U95,V03V10,V14040104001612TAP2
1014  9 18          BCE   CONV3,ADDR-1,?                                     8  1521  B V55 G94 ?        162
1015  9 19          BCE   CONV3,ADDR-1,!                                     8  1529  B V55 G94 !        162
1016  9 20          A     @|0@,PARAMT&7&X1                                   7  1537  A N30 G|7          162
1017  9 21          S     @1@,ADDR-1                                         7  1544  S M59 G94          162
1018  9 22          B     CONV2&7                                            4  1551  B V21              162
BV55G94?BV55G94!AN30G|7SM59G94BV21     L034V54,V29V37,V44V51,040040104001622TAP2
1019  9 23   CONV3  CW    PARAMT&2&X1,PARAMT&8&X1                            7  1555  ) G|2 G|8          163
1020  9 24   CONEXT B     0                                                  4  1562  B 000              163
1021  9 25   *
1022         SPECLT SW    RECORD,HADLIT                                      7  1566  , F05 M52          163
1023                B     PUT                                                4  1573  B T83              163
1024         *
1025         SPEC   SW    RECORD                                             4  1577  , F05              163
1026                WTW   2,RECORD                                           8  1581  L %U2 F05 W        163
1027                BER   TPERR                                              5  1589  B 201 L            163
)G|2G|8B000,F05M52BT83,F05L%U2F05WB201LL039V93,V62V66,V73V77,V81V89104001632TAP2
1028                BEF   *&1                                                5  1594  B V99 K            164
1029                RTW   1,RECORD                                           8  1599  L %U1 F05 R        164
1030                BER   TPERR                                              5  1607  B 201 L            164
1031                BEF   ENDPH2                                             5  1612  B U19 K            164
1032         TSTORG CW    HADLIT                                             4  1617  ) M52              164
1033                C     OPER,@ORG @                                        7  1621  C F23 N34          164
1034                BE    GET&18                                             5  1628  B 381 S            164
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                          1401 TWO-TAPE AUTOCODER - PHASE 2 - JAN 8, 1962  RBR       2TAP2              PAGE   21

 SEQ PG LIN  LABEL  OP    OPERANDS                                          SFX CT  LOCN  INSTRUCTION TYPE  CARD
BV99KL%U1F05RB201LBU19K)M52CF23N34B381SL039W32,V99W07,W12W17,W21W28104001642TAP2
1035                BSP   1                                                      5  1633  U %U1 B             165
1036                CS    PARTBL&90                                              4  1638  / G76               165
1037                CS                                                           1  1642  /                   165
1038                LCA   @GEN  @,PARAMT&64                                      7  1643  L N39 G64           165
1039                LCA   @ORG @,OPER                                            7  1650  L N34 F23           165
1040                LCA   @*@,RECORD&20                                          7  1657  L N40 F25           165
1041                LCA   @*@,PARAMT                                             7  1664  L N40 G00           165
U%U1B/G76/LN39G64LN34F23LN40F25LN40G00 L038W70,W38W42,W43W50,W57W64104001652TAP2
1042                LCA   @S@,AADDR                                              7  1671  L N41 F86           166
1043                B     PUTYYY                                                 4  1678  B P01               166
1044         *
1045         *
1046  9 26   *                        ***  OPERATION CODE TABLE  ***
1047  9 27   *
1048  9 28   *
1049  9 29   *                           * FIRST FOUR POSITIONS IS MNEUMONIC OP
1050  9 30   *                           * FIFTH POSITION IS MACHINE OP CODE
1051  9 31   *                             FOR IMPERATIVE COMMANDS
1052  9 32   *                           * SIXTH POSITION REPRESENTS D-MODIFIER
1053  9 33   *                             AN ASTERISK INDICATES THE D-MODIFIER
1054  9 34   *                                  MUST BE PROVIDED IN THE OPERAND
1055  9 35   *                             A WORDMARK UNDER THE SIXTH POSITION
1056  9 36   *                                  MEANS AUTOCODER WILL GENERATE IT
1057  9 37   *                           * THE SEVENTH POSITIONIS USED FOR TAPE
1058  9 38   *                                  AND RAMAC COMMANDS ONLY
1059  9 39   *                             FOR TAPE, IT IS INSERTED AFTER THE %
1060  9 40   *                             FOR RAMAC, THE WORDMARK UNDER IT
1061  9 41   *                                  MEANS IT IS INSERTED IN THE LOW
1062  9 42   *                                  ORDER LOCATION OF THE A-ADDRESS
1063  9 43   *                                  AND AN *F* WILL BE INSERTED
1064  9 44   *                                  AFTER THE %
1065  9 45   *                           * DECLARATIVE AND CONTROL COMMANDS
1066  9 46   *                             REQUIRING SPECIAL PROCESSING HAVE A
1067  9 47   *                             WORDMARK UNDER THE FIFTH POSITION
1068  9 48   *                             AND POSITIONS 5-8 CONTAIN THE ADDRESS
1069  9 49   *                             OF THE APPROPRIATE ROUTINE
1070  9 50   *
1071  9 51   *
1072  9 52   OPTABL DCW   @B   B  @                                                 7  1688                      166
1073  9 53          DCW   @MCW M  @                                                7  1695                      166
1074  9 54          DCW   @LCA L  @                                                7  1702                      166
1075  9 55          DCW   @BCE B* @                                                7  1709                      166
LN41F86BP01B   B  MCW M  LCA L  BCE B* L039X09,W78W82,W89W96,X03040104001662TAP2
1076  9 56          DCW   @A   A  @                                                7  1716                      167
1077  9 57          DCW   @S   S  @                                                7  1723                      167
1078  9 58          DCW   @SW  ,  @                                                7  1730                      167
1079  9 59          DCW   @CW  )  @                                                7  1737                      167
1080  9 60          DCW   @CS  /  @                                                7  1744                      167
A   A  S   S  SW  ,  CW  )  CS  /      L035X44,X17X24,X31X38,040040104001672TAP2
1081  9 61          DCW   @H   .  @                                                7  1751                      168
1082  9 62          DCW   @C   C  @                                                7  1758                      168
1083  9 63          DCW   @ZA  ?  @                                                7  1765                      168
1084  9 64          DCW   @ZS  !  @                                                7  1772                      168
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                           1401 TWO-TAPE AUTOCODER - PHASE 2 - JAN 8, 1962  RBR       2TAP2              PAGE   22

 SEQ PG LIN  LABEL  OP    OPERANDS                                            SFX CT  LOCN  INSTRUCTION TYPE  CARD
1085  9 65          DCW   @MCE E  @                                               7  1779                      168
H   .  C   C  ZA  ?  ZS  !  MCE E      L035X79,X52X59,X66X73,040040104001682TAP2
1086  9 66          DCW   @MCS Z  @                                               7  1786                      169
1087  9 67          DCW   @MN  D  @                                               7  1793                      169
1088  9 68          DCW   @MZ  Y  @                                               7  1800                      169
1089  9 69          DCW   @MCM P  @                                               7  1807                      169
1090  9 70          DCW   @BE  B@                                                 5  1812                      169
1091  9 71          DCW   @S @                                                    2  1814                      169
MCS Z  MN  D  MZ  Y  MCM P  BE  BS     L035Y14,X87X94,Y01Y08,Y13040104001692TAP2
1092  9 72          DCW   @BU  B@                                                 5  1819                      170
1093  9 73          DCW   @/ @                                                    2  1821                      170
1094  9 74          DCW   @BH  B@                                                 5  1826                      170
1095  9 75          DCW   @U @                                                    2  1828                      170
1096  9 76          DCW   @BL  B@                                                 5  1833                      170
1097  9 77          DCW   @T @                                                    2  1835                      170
1098  9 78          DCW   @DA  @                                                  4  1839                      170
BU  B/ BH  BU BL  BT DA                L025Y39,Y20Y22,Y27Y29,Y34Y36104001702TAP2
1099  9 79          DSA   &PUT                                                    3  1842  T83                 171
1100  9 80          DCW   @DC  @                                                  4  1846                      171
1101  9 81          DSA   &PUT                                                    3  1849  T83                 171
1102  9 82          DCW   @DCW @                                                  4  1853                      171
1103  9 83          DSA   &PUT                                                    3  1856  T83                 171
1104  9 84          DCW   @DS  @                                                  4  1860                      171
1105  9 85          DSA   &DS                                                     3  1863  997                 171
T83DC  T83DCW T83DS  997               L024Y63,Y43Y47,Y50Y54,Y57Y61104001712TAP2
1106  9 86          DCW   @DSA @                                                  4  1867                      172
1107  9 87          DSA   &DSA                                                    3  1870  |08                 172
1108  9 88          DCW   @EQU @                                                  4  1874                      172
1109  9 89          DSA   &CONTRL                                                 3  1877  989                 172
1110  9 90          DCW   @CTL @                                                  4  1881                      172
1111                DSA   &CONTRL                                                 3  1884  989                 172
1112  9 92          DCW   @END @                                                  4  1888                      172
DSA |08EQU 989CTL 989END               L025Y88,Y68Y71,Y75Y78,Y82Y85104001722TAP2
1113  9 93          DSA   &CONTRL                                                 3  1891  989                 173
1114  9 94          DCW   @EX  @                                                  4  1895                      173
1115  9 95          DSA   &CONTRL                                                 3  1898  989                 173
1116  9 96          DCW   @LTOR@                                                  4  1902                      173
1117  9 97          DSA   &CONTRL                                                 3  1905  989                 173
1118  9 98          DCW   @ORG @                                                  4  1909                      173
1119  9 99          DSA   &CONTRL                                                 3  1912  989                 173
989EX  989LTOR989ORG 989               L024Z12,Y92Y96,Y99Z03,Z06Z10104001732TAP2
1120 10 00          DCW   @XFR @                                                  4  1916                      174
1121 10 01          DSA   &CONTRL                                                 3  1919  989                 174
1122 10 02          DCW   @JOB @                                                  4  1923                      174
1123                DSA   &CONTRL                                                 3  1926  989                 174
1124 10 04          DCW   @BCV B@                                                 5  1931                      174
1125 10 05          DCW   @@ @                                                    2  1933                      174
1126 10 06          DCW   @D   %  @                                               7  1940                      174
XFR 989JOB 989BCV B@ D   %             L028Z40,Z17Z20,Z24Z27,Z32Z34104001742TAP2
1127 10 07          DCW   @M   @  @                                               7  1947                      175
1128 10 08          DCW   @BEF B@                                                 5  1952                      175
1129 10 09          DCW   @K @                                                    2  1954                      175
1130 10 10          DCW   @BER B@                                                 5  1959                      175
1131 10 11          DCW   @L @                                                    2  1961                      175
1132 10 12          DCW   @BIN B* @                                               7  1968                      175
1133 10 13          DCW   @BLC B@                                                 5  1973                      175
M   @  BEF BK BER BL BIN B* BLC B      L033Z73,Z48Z53,Z55Z60,Z62Z69104001752TAP2
1134 10 14          DCW   @A @                                                    2  1975                      176
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                          1401 TWO-TAPE AUTOCODER - PHASE 2 - JAN 8, 1962  RBR       2TAP2               PAGE   23

 SEQ PG LIN  LABEL  OP    OPERANDS                                            SFX CT  LOCN  INSTRUCTION TYPE  CARD
1135 10 15          DCW   @BM  V@                                                  5  1980                     176
1136 10 16          DCW   @K @                                                     2  1982                     176
1137 10 17          DCW   @BW  V@                                                  5  1987                     176
1138 10 18          DCW   @1 @                                                     2  1989                     176
1139 10 19          DCW   @BWZ V* @                                                7  1996                     176
1140 10 20          DCW   @BSS B* @                                                7  2003                     176
A BM  VK BW  V1 BWZ V* BSS B*           L030!03,Z76Z81,Z83Z88,Z90Z97104001762TAP2
1141 10 21          DCW   @P   4  @                                                7  2010                     177
1142 10 22          DCW   @R   1  @                                                7  2017                     177
1143 10 23          DCW   @RCB 1@                                                  5  2022                     177
1144 10 24          DCW   @C @                                                     2  2024                     177
1145 10 25          DCW   @RP  5  @                                                7  2031                     177
1146 10 26          DCW   @SPF 9  @                                                7  2038                     177
P   4  R   1  RCB 1C RP  5  SPF 9       L035!38,!11!18,!23!25,!32040104001772TAP2
1147 10 27          DCW   @SRF 8  @                                                7  2045                     178
1148 10 28          DCW   @W   2  @                                                7  2052                     178
1149 10 29          DCW   @RT  M@                                                  5  2057                     178
1150 10 30          DCW   @RU@                                                     2  2059                     178
1151 10 31          DCW   @WM  2@                                                  5  2064                     178
1152 10 32          DCW   @) @                                                     2  2066                     178
1153 10 33          DCW   @BC9 B@                                                  5  2071                     178
SRF 8  W   2  RT  MRUWM  2) BC9 B       L033!71,!46!53,!58!60,!65!67104001782TAP2
1154 10 34          DCW   @9 @                                                     2  2073                     179
1155 10 35          DCW   @BAV B@                                                  5  2078                     179
1156 10 36          DCW   @Z @                                                     2  2080                     179
1157 10 37          DCW   @BPCBB@                                                  5  2085                     179
1158 10 38          DCW   @R @                                                     2  2087                     179
1159 10 39          DCW   @BPB B@                                                  5  2092                     179
1160 10 40          DCW   @P @                                                     2  2094                     179
9 BAV BZ BPCBBR BPB BP                  L023!94,!74!79,!81!86,!88!93104001792TAP2
1161 10 41          DCW   @BBE W* @                                                7  2101                     180
1162 10 42          DCW   @SSB K* @                                                7  2108                     180
1163 10 43          DCW   @SS  K* @                                                7  2115                     180
1164 10 44          DCW   @WP  6  @                                                7  2122                     180
1165 10 45          DCW   @WR  3  @                                                7  2129                     180
BBE W* SSB K* SS  K* WP  6  WR  3       L035J29,J02J09,J16J23,040040104001802TAP2
1166 10 46          DCW   @WRP 7  @                                                7  2136                     181
1167 10 47          DCW   @CC  F* @                                                7  2143                     181
1168 10 48          DCW   @CCB F* @                                                7  2150                     181
1169 10 49          DCW   @NOP N  @                                                7  2157                     181
1170 10 50          DCW   @SAR Q  @                                                7  2164                     181
WRP 7  CC  F* CCB F* NOP N  SAR Q       L035J64,J37J44,J51J58,040040104001812TAP2
1171 10 51          DCW   @SBR H  @                                                7  2171                     182
1172 10 52          DCW   @MIZ X  @                                                7  2178                     182
1173 10 53          DCW   @MLC M  @                                                7  2185                     182
1174 10 54          DCW   @MLCWL  @                                                7  2192                     182
1175 10 55          DCW   @MLNSD  @                                                7  2199                     182
SBR H  MIZ X  MLC M  MLCWL  MLNSD       L035J99,J72J79,J86J93,040040104001822TAP2
1176 10 56          DCW   @MLZSY  @                                                7  2206                     183
1177 10 57          DCW   @MRCMP  @                                                7  2213                     183
1178 10 58          DCW   @WT  M@                                                  5  2218                     183
1179 10 59          DCW   @WU@                                                     2  2220                     183
1180 10 60          DCW   @BSP U@                                                  5  2225                     183
1181 10 61          DCW   @BU@                                                     2  2227                     183
1182 10 62          DCW   @CU  U* @                                                7  2234                     183
MLZSY  MRCMP  WT  MWUBSP UBUCU  U*      L035K34,K07K14,K19K21,K26K28104001832TAP2
1183 10 63          DCW   @RTW L@                                                  5  2239                     184
1184 10 64          DCW   @RU@                                                     2  2241                     184
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                          1401 TWO-TAPE AUTOCODER - PHASE 2 - JAN 8, 1962  RBR       2TAP2              PAGE   24

 SEQ PG LIN  LABEL  OP    OPERANDS                                                      SFX CT  LOCN  INSTRUCTION TYPE  CARD
1185 10 65          DCW   @RWD U@                                                   5  2246                     184
1186 10 66          DCW   @RU@                                                      2  2248                     184
1187 10 67          DCW   @RWU U@                                                   5  2253                     184
1188 10 68          DCW   @UU@                                                      2  2255                     184
1189 10 69          DCW   @SKP U@                                                   5  2260                     184
RTW LRURWD URURWU UUSKP U              L026K60,K40K42,K47K49,K54K56104001842TAP2
1190 10 70          DCW   @EU@                                                      2  2262                     185
1191 10 71          DCW   @WTM U@                                                   5  2267                     185
1192 10 72          DCW   @MU@                                                      2  2269                     185
1193 10 73          DCW   @WTW L@                                                   5  2274                     185
1194 10 74          DCW   @WU@                                                      2  2276                     185
1195                DCW   @MA  #  @                                                 7  2283                     185
1196 10 75          DCW   @MBC M@                                                   5  2288                     185
EUWTM UMUWTW LWUMA  #  MBC M           L028K88,K63K68,K70K75,K77K84104001852TAP2
1197 10 76          DCW   @B @                                                      2  2290                     186
1198 10 77          DCW   @MBD M@                                                   5  2295                     186
1199 10 78          DCW   @A @                                                      2  2297                     186
1200 10 79          DCW   @DCR U@                                                   5  2302                     186
1201 10 80          DCW   @D @                                                      2  2304                     186
1202 10 81          DCW   @ECR U@                                                   5  2309                     186
1203 10 82          DCW   @E @                                                      2  2311                     186
B MBD MA DCR UD ECR UE                 L023L11,K91K96,K98L03,L05L10104001862TAP2
1204 10 83          DCW   @LU  L* @                                                 7  2318                     187
1205 10 84          DCW   @MU  M* @                                                 7  2325                     187
1206 10 85          DCW   @PCB 4@                                                   5  2330                     187
1207 10 86          DCW   @C @                                                      2  2332                     187
1208 10 87          DCW   @RF  4@                                                   5  2337                     187
1209 10 88          DCW   @R @                                                      2  2339                     187
1210 10 89          DCW   @RTB M@                                                   5  2344                     187
LU  L* MU  M* PCB 4C RF  4R RTB M      L033L44,L19L26,L31L33,L38L40104001872TAP2
1211 10 90          DCW   @RB@                                                      2  2346                     188
1212 10 91          DCW   @WRF 6@                                                   5  2351                     188
1213 10 92          DCW   @R @                                                      2  2353                     188
1214 10 93          DCW   @WTB M@                                                   5  2358                     188
1215 10 94          DCW   @WB@                                                      2  2360                     188
1216 10 95          DCW   @RD  M@                                                   5  2365                     188
1217 10 96          DCW   @R@                                                       1  2366                     188
RBWRF 6R WTB MWBRD  MR                 L022L66,L47L52,L54L59,L61L66104001882TAP2
1218 10 97          DCW   @1@                                                       1  2367                     189
1219 10 98          DCW   @RDT M@                                                   5  2372                     189
1220 10 99          DCW   @R@                                                       1  2373                     189
1221 11 00          DCW   @2@                                                       1  2374                     189
1222 11 01          DCW   @RDW L@                                                   5  2379                     189
1223 11 02          DCW   @R@                                                       1  2380                     189
1224 11 03          DCW   @1@                                                       1  2381                     189
1RDT MR2RDW LR1                        L015L81,L68L73,L74L75,L80L81104001892TAP2
1225 11 04          DCW   @RDTWL@                                                   5  2386                     190
1226 11 05          DCW   @R@                                                       1  2387                     190
1227 11 06          DCW   @2@                                                       1  2388                     190
1228 11 07          DCW   @SD  M@                                                   5  2393                     190
1229 11 08          DCW   @R@                                                       1  2394                     190
1230 11 09          DCW   @0@                                                       1  2395                     190
1231 11 10          DCW   @WD  M@                                                   5  2400                     190
RDTWLR2SD  MR0WD  M                    L019M00,L87L88,L89L94,L95L96104001902TAP2
1232 11 11          DCW   @W@                                                       1  2401                     191
1233 11 12          DCW   @1@                                                       1  2402                     191
1234 11 13          DCW   @WDT M@                                                   5  2407                     191
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                             1401 TWO-TAPE AUTOCODER - PHASE 2 - JAN 8, 1962  RBR       2TAP2               PAGE   25

 SEQ PG LIN  LABEL  OP    OPERANDS                                             SFX CT  LOCN  INSTRUCTION TYPE  CARD
1235 11 14          DCW   @W@                                                       1  2408                     191
1236 11 15          DCW   @2@                                                       1  2409                     191
1237 11 16          DCW   @WDW L@                                                   5  2414                     191
1238 11 17          DCW   @W@                                                       1  2415                     191
W1WDT MW2WDW LW                           L015M15,M02M03,M08M09,M10M15104001912TAP2
1239 11 18          DCW   @1@                                                       1  2416                     192
1240 11 19          DCW   @WDTWL@                                                   5  2421                     192
1241 11 20          DCW   @W@                                                       1  2422                     192
1242 11 21          DCW   @2@                                                       1  2423                     192
1243 11 22          DCW   @WDC M@                                                   5  2428                     192
1244 11 23          DCW   @W@                                                       1  2429                     192
1245 11 24          DCW   @3@                                                       1  2430                     192
1WDTWLW2WDC MW3                           L015M30,M17M22,M23M24,M29M30104001922TAP2
1246 11 25          DCW   @WDCWL@                                                   5  2435                     193
1247 11 26          DCW   @W@                                                       1  2436                     193
1248 11 27          DCW   @3@                                                       1  2437                     193
1249 11 28   ENDOPT DCW   @    @                                                    4  2441                     193
1250 11 29          DC    @}@                                                       1  2442                     193
1251 11 291  ORGB   ORG   2771                                                         2443   2771
WDCWLW3    }                              L012M42,M36M37,M38040,040040104001932TAP2
1252         XBIN   C     OPER,1965          COMPARE TO -BIN-                       7  2771  C F23 Z65          194
1253                BU    CLEARX                                                    5  2778  B R01 /            194
1254                BCE   PUT,ICOUNT,5                                              8  2783  B T83 F92 5        194
1255                MLC   *-7,ICOUNT                                                7  2791  M P90 F92          194
1256                MLC   @ @,BADDR                                                 7  2798  M M88 F87          194
CF23Z65BR01/BT83F925MP90F92MM88F87      L034Q04,P78P83,P91P98,040040104001942TAP2
1257                LCA   AMPER,PARAMT&60                                           7  2805  L Q16 G60          195
1258                B     PUT                                                       4  2812  B T83              195
1259         AMPER  DCW   @&@                                                       1  2816                     195
1260                ORG   2751                                                                2751
LQ16G60BT83&                              L012Q16,Q12Q16,040040,040040104001952TAP2
1261         KILLIT C     ADDR,@000@                                                7  2751  C G95 M58          196
1262                BU    PUT                                                       5  2758  B T83 /            196
1263                B     GET                                                       4  2763  B 363              196
1264                ORG   2711                                                                2711
CG95M58BT83/B363                          L016P66,P58P63,040040,040040104001962TAP2
1265         XBCE   C     OPER,@BCE @                                               7  2711  C F23 M83          197
1266                BU    *&9                                                       5  2718  B P31 /            197
1267                BCE   RELEAS,ICOUNT,1                                           8  2723  B 959 F92 1        197
1268                A     K1,ICOUNT                                                 7  2731  A E19 F92          197
1269                B     RELEAS                                                    4  2738  B 959              197
1270                ORG   2901                                                                2901
CF23M83BP31/B959F921AE19F92B959         L031P41,P18P23,P31P38,040040104001972TAP2
1271         CLEARX CW    PARAMT&60                                                 4  2901  ) G60              198
1272                B     PUT                                                       4  2905  B T83              198
1273                ORG   2601                                                                2601
)G60BT83                                  L008R08,R05040,040040,040040104001982TAP2
1274         LOADXX LCA   XLIMIT,15                                                 7  2601  L O55 015          199
1275                B     LOAD                                                      4  2608  B 100              199
LO55015B100                               L011O11,O08040,040040,040040104001992TAP2
1276         2655   DSA   1053                                                      3  2655  |53                200
1277         XLIMIT EQU   2655                                                         2655
1278                ORG   2701                                                                2701
|53                                       L003O55,040040,040040,040040104002002TAP2
1279         PUTYYY SW    RECORD                                                    4  2701  , F05              201
1280                B     PUT                                                       4  2705  B T83              201
1281                ORG   ORGB                                                                2443
,F05BT83                                  L008P08,P05040,040040,040040104002012TAP2
        798         DCW   @         @                                               9  2451             LIT     202
        800  HADLIT       #01                                                       1  2452             AREA    202
                          @030@                                                     3  2455             LIT     202
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                           1401 TWO-TAPE AUTOCODER - PHASE 2 - JAN 8, 1962  RBR       2TAP2               PAGE   26

 SEQ PG LIN  LABEL  OP    OPERANDS                                          SFX CT  LOCN  INSTRUCTION TYPE  CARD
                          @000@                                                  3  2458                LIT    202
                          @1@                                                    1  2459                LIT    202
       819  ONE           #01                                                    1  2460                AREA   202
       823                @00000     @                                          10  2470                LIT    202
     0300001 00000                    L028M70,M52M53,M56M59,M60M61104002022TAP2
                          @060@                                                  3  2473                LIT    203
       840                @CHAIN@                                                5  2478                LIT    203
                          @|@                                                    1  2479                LIT    203
                          @BCE @                                                 4  2483                LIT    203
                          @BBE @                                                 4  2487                LIT    203
                          @ @                                                    1  2488                LIT    203
       950                @LIT  @                                                5  2493                LIT    203
060CHAIN|BCE BBE  LIT                 L023M93,M74M79,M80M84,M88M89104002032TAP2
       952                @AREA @                                                5  2498                LIT    204
       955                @ADCON@                                                5  2503                LIT    204
       962                @MACRO@                                                5  2508                LIT    204
                          @  @                                                   2  2510                LIT    204
       976                @GEN  @                                                5  2515                LIT    204
                          @00?@                                                  3  2518                LIT    204
       984  PREVOP        #05                                                    5  2523                AREA   204
AREA ADCONMACRO  GEN  00?             L030N23,M99N04,N09N11,N16N19104002042TAP2
       985  PREVAC        #01                                                    1  2524                AREA   205
                          @3@                                                    1  2525                LIT    205
                          @00@                                                   2  2527                LIT    205
                          @4@                                                    1  2528                LIT    205
                          @|0@                                                   2  2530                LIT    205
                          @ORG @                                                 4  2534                LIT    205
      1038                @GEN  @                                                5  2539                LIT    205
 3004|0ORG GEN                        L016N39,N25N26,N28N29,N31N35104002052TAP2
                          @*@                                                    1  2540                LIT    206
                          @S@                                                    1  2541                LIT    206
*S                                    L002N41,N41040,040040,040040104002062TAP2
                                      N000000,040040,040040,040040B16702072TAP2
,015022)024056,029036,040047,0540611001,001008B001     ,001008B001     02082TAP2
,068072)063067/061039                             ,001001104002092TAP2
1282               EX    SYSTEM                                                       B 167              207
                                      /167080                         02102TAP2
1283 11 30         END   SYSTEM                                                       / 167 080          210
1CLEAR STORAGE 1     ,008015,019026,030,034041,045,053,0570571026                                          1
,008015,019026,030,034041,045,053,0570571026                          00012TAP3
CLEAR STORAGE 2     L068112,102106,113/101099/I99,027A070028)027B0010270B0261,001/001113I0                2
L068112,102106,113/101099/I99,027A070028)027B0010270B0261,001/001113I0 00022TAP3
BOOTSTRAP           ,008015,022029,036040,047054,061068,072/061039              ,0010011040                3
,008015,022029,036040,047054,061068,072/061039              ,001001104000032TAP3

                           1401 TWO-TAPE AUTOCODER, PHASE 3 - JULY 30, 1962 RBR       2TAP3               PAGE    1

 SEQ PG LIN  LABEL  OP    OPERANDS                                          SFX CT  LOCN  INSTRUCTION TYPE  CARD
 101         000    JOB   1401 TWO-TAPE AUTOCODER, PHASE 3 - JULY 30, 1962 RBR
 102                CTL   630 1
 103         *
 104    03   ******    PHASE 3 - BUILD UP SYMBOL TABLE AND PROCESS LITERALS  ***
 105    04   *
 106    05   *                      ***  PHASE 3 IDENTIFICATION AT 333  ***
 107    06   *
 108    07          ORG   333                                                              0333
 109    08          DCW   @3@                                                    1  0333                       4
 110    09   *
 111    10   *
 112    11          ORG   82                                                               0082
3                                     L001333,040040,040040,040040104000042TAP3
 113    12   CHECK  DCW   @ @                                                    1  0082                       5
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 114     13          DCW   @  }@                                                   3  0085                        5
 115     14   X1     EQU   89                                                         0089
   }                                   L004085,083040,040040,040040104000052TAP3
 116     15   0089   DCW   @000@                                                   3  0089                        6
 117     16   X2     EQU   94                                                         0094
000                                    L003089,040040,040040,040040104000062TAP3
 118     17   0094   DCW   @000@                                                   3  0094                        7
 119     18   X3     EQU   99                                                         0099
000                                    L003094,040040,040040,040040104000072TAP3
 120     19   0099   DCW   @000@                                                   3  0099                        8
 121          HLDLOC EQU   3                                                          0003
 122          SAVLOC EQU   6                                                          0006
 123          LASTLT EQU   9                                                          0009
 124          LTTSAV EQU   12                                                         0012
 125          TBLLMT EQU   15                                                         0015
 126     22   REITER EQU   193                                                        0193
 127     23   FULL   EQU   194                                                        0194
 128     24   LITCTL EQU   195                                                        0195
 129     25   RELATV EQU   196                                                        0196
 130          DA     EQU   197                                                        0197
 131     26          ORG   100                                                               0100
 132     27   LOAD   RWD   1                                                       5  0100  U %U1 R               8
 133     28          RTW   1,CHECK                                                 8  0105  L %U1 082 R           8
 134     29          BER   TPERR                                                   5  0113  B 201 L               8
 135     30          BCE   *&5,CHECK,D                                             8  0118  B 130 082 D           8
 136     31          B     LOAD&5                                                  4  0126  B 105                 8
 137     32          BSP   1                                                       5  0130  U %U1 B               8
000U%U1RL%U1082RB201LB130082DB105U%U1B L038134,100105,113118,126130104000082TAP3
 138     33          RTW   1,333                                                   8  0135  L %U1 333 R           9
 139     34          SW    CHECK&3                                                 4  0143  , 085                 9
 140     35          RTW   1,CHECK                                                 8  0147  L %U1 082 R           9
 141     36          BCE   334,CHECK,9                                             8  0155  B 334 082 9           9
 142     37          B     *-19                                                    4  0163  B 147                 9
 143     38   SEEK   EQU   LOAD&25               NUMBER OF PHASE REQUESTED            0125
L%U1333R,085L%U1082RB3340829B147       L032166,143147,155163,040040104000092TAP3
 144     39   SYSTEM WTW   1,333                                                   8  0167  L %U1 333 W          10
 145     40          BER   *&5                                                     5  0175  B 184 L              10
 146     41          R     40                                                      4  0180  1 040                10
 147     42          BSP   1                                                       5  0184  U %U1 B              10
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                            1401 TWO-TAPE AUTOCODER, PHASE 3 - JULY 30, 1962 RBR       2TAP3              PAGE    2

 SEQ PG LIN  LABEL  OP    OPERANDS                                            SFX CT  LOCN  INSTRUCTION TYPE  CARD
 148    43          SKP   1                                                        5  0189  U %U1 E             10
 149    44          B     SYSTEM                                                   4  0194  B 167               10
 150    45          H                                                              1  0198  .                   10
 151    46   OVFLIT EQU   14                                                          0014
 152    47          ORG   3971                                                              3971
 153    47          ORG   3943                                                              3943
L%U1333WB184L1040U%U1BU%U1EB167.       L032198,175180,184189,194198104000102TAP3
 154    471  SENTNL BCE   REWRIT,333,1                                             8  3943  B I71 333 1         11
 155    472         BCE   REWRIT,333,3                                             8  3951  B I71 333 3         11
 156    473         BCE   REWRIT,333,7                                             8  3959  B I71 333 7         11
 157    474         B     334                                                      4  3967  B 334               11
 158    48   REWRIT BSP   1                                                        5  3971  U %U1 B             11
BI713331BI713333BI713337B334U%U1B      L033I75,I51I59,I67I71,040040104000112TAP3
 159    49          WTW   1,CHECK                                                  8  3976  L %U1 082 W         12
 160    50          BER   TPERR                                                    5  3984  B 201 L             12
 161    51          BCE   334,CHECK,%                                              8  3989  B 334 082 %         12
 162    52          H                                                              1  3997  .                   12
 163    53          ORG   201                                                               0201
 164    54   *                        LINKAGE TO GENERALIZED TAPE ERROR ROUTINE
L%U1082WB201LB334082%.                 L022I97,I84I89,I97040,040040104000122TAP3
 165    55   TPERR  H                                                              1  0201  .                   13
 166    56   LABEL  EQU   RECORD&10                                                   2108
 167    57   *
 168    58   *
 169    59   *                            ** 2TAP2 SUBROUTINES **
 170    60   *
 171    61          ORG   ZONE&5                                                            2276
 172    62   *                        ROUTINE TO PUT A SYMBOL IN THE LABEL TABLE
 173    63   *                           * SYMBOL TAKEN FROM LABEL IN RECORD
 174    64   *                           * CURRENT AVAILABLE TABLE LOCATION IS
 175    65   *                             INDEXED BY X3
 176    66   *                           * IF LABEL TABLE IS FULL,LABEL IS NOT
 177    67   *                             STORED, AND A W/M IS SET AT RECORD&1
.                                      L001201,040040,040040,040040104000132TAP3
 178    68   SETLAB SBR   SETEXT&3                                                 4  2276  H L40               14
 179    69          NOP   TBLOVF,FULL,1                                            8  2280  N L41 194 1         14
 180    70          MLC   LOCCTR,LABTBL&X3                                         7  2288  M O98 QA3           14
 181    71          MLC   LABEL,LABTBL-3&X3                                        7  2295  M J08 QA0           14
 182    72          NOP   000,000,0                                                8  2302  N 000 000 0         14
 183    73          NOP   000                                                      4  2310  N 000               14
HL40NL411941MO98QA3MJ08QA0N0000000N000 L038L13,K80K88,K95L02,L10040104000142TAP3
 184    74   TSTLMT A     @9@,X3                                                   7  2314  A O80 099           15
 185                C     TBLLMT,X3                                                7  2321  C 015 099           15
 186    76          BU    TBLOVF&7                                                 5  2328  B L48 /             15
 187    77          B     TBLOVF                                                   4  2333  B L41               15
 188    78   SETEXT B     0                                                        4  2337  B 000               15
 189          TBLOVF SW    FULL,RECORD&1                                           7  2341  , 194 !99           15
AO80099C015099BL48/BL41B000,194!99     L034L47,L21L28,L33L37,L41040104000152TAP3
 190                LCA   LITTOT,LTTSAV                                            7  2348  L P01 012           16
 191    80          B     LOADXX                                                   4  2355  B H89               16
 192    81   *                        ROUTINE TO LOOK UP LABEL IN LABEL TABLE
 193    82   *                           * ARGUMENT LABEL PLACED AT LABTBL-3&X3
 194    83   *                           * IF LABEL FOUND, RETURN BY EXIT
 195    84   *                           * IF NOT FOUND, RETURN BY EXIT&4
 196    85   *                           * HIT LOCATED BY X2
 197    86   TLULAB SBR   TLUEXT&3                                                 4  2359  H M50               16
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 SEQ PG LIN  LABEL  OP    OPERANDS                                          SFX CT  LOCN  INSTRUCTION TYPE  CARD
 198    87          MLC   @000@,X2                                               7  2363  M O83 094           16
 199    88          SW    TLUFST&7                                               4  2370  , L92               16
 200    89          MLC   LABTBL-7&X3,TLUFST&7                                   7  2374  M Q?6 L92           16
 201    90          CW    TLUFST&7                                               4  2381  ) L92               16
LP01012BH89HM50MO83094,L92MQ?6L92)L92  L037L84,L55L59,L63L70,L74L81104000162TAP3
 202    91   TLUFST BCE   HITFST,LABTBL-7&X2,                                    8  2385  B M04 Q!6           17
 203    92          A     @9@,X2                                                 7  2393  A O80 094           17
 204    93          B     TLUFST                                                 4  2400  B L85               17
 205    94   HITFST C     LABTBL-3&X2,LABTBL-3&X3                                7  2404  C QJ0 QA0           17
 206    95          BU    TLUFST&8                                               5  2411  B L93 /             17
 207    96          CW    LABTBL-8&X3                                            4  2416  ) Q?5               17
BM04Q!6 AO80094BL85CQJ0QA0BL93/)Q?5    L035M19,L93M00,M04M11,M16040104000172TAP3
 208    97          C     X2,X3                                                  7  2420  C 094 099           18
 209    98          BU    TLUEXT                                                 5  2427  B M47 /             18
 210    99          SW    TLUEXT&1                                               4  2432  , M48               18
 211  1 00          A     @4@,TLUEXT&3                                           7  2436  A O84 M50           18
 212  1 01          CW    TLUEXT&1                                               4  2443  ) M48               18
 213  1 02   TLUEXT B     0                                                      4  2447  B 000               18
 214  1 03   *                        ROUTINE TO MODIFY A MACHINE ADDRESS BY A
 215  1 04   *                             PLUS OR MINUS ADJUSTMENT VALUE
 216  1 05   *                           * ADDRESS PLACED AT ADDR
 217  1 06   *                           * ADJUSTMENT VALUE TAKEN FROM PARAMT&10
 218  1 07   *                           * MODIFIED ADDRESS SET AT RESULT-1
 219  1 08   MODADD SBR   MODEXT&3                                               4  2451  H N95               18
C094099BM47/,M48AO84M50)M48B000HN95    L035M54,M27M32,M36M43,M47M51104000182TAP3
 220  1 09          BAV   *&1                                                    5  2455  B M60 Z             19
 221  1 10          CW    NEG                                                    4  2460  ) P13               19
 222  1 11          SW    PARAMT&11                                              4  2464  , K04               19
 223  1 12          MLC   @000@,X1                                               7  2468  M O83 089           19
 224  1 13          MLC   PARAMT&19,X1                                           7  2475  M K12 089           19
 225  1 14          MLC   @000@,HOLD                                             7  2482  M O83 P07           19
BM60Z)P13,K04MO83089MK12089MO83P07     L034M88,M60M64,M68M75,M82040104000192TAP3
 226  1 15          MLC   PARAMT&10&X1,HOLD                                      7  2489  M K|3 P07           20
 227  1 16          MZ    PARAMT&10,HOLD                                         7  2496  Y K03 P07           20
 228  1 17          BM    DECR,HOLD                                              8  2503  V O30 P07 K         20
 229  1 18   SETINC MLC   ADDR,RESULT-1                                          7  2511  M P04 P10           20
 230  1 19          MZ    @ @,RESULT-1                                           7  2518  Y O85 P10           20
MK|3P07YK03P07VO30P07KMP04P10YO85P10   L036N24,M96N03,N11N18,040040104000202TAP3
 231  1 20          A     HOLD,RESULT-1                                          7  2525  A P07 P10           21
 232  1 21          MZ    ADDR,RESULT-1                                          7  2532  Y P04 P10           21
 233  1 22          MZ    RESULT-3,YYY                                           7  2539  Y P08 O29           21
 234  1 23          MZ    ADDR-2,XXX                                             7  2546  Y P02 O28           21
 235  1 24          BW    MODEXT&4,NEG                                           8  2553  V N96 P13 1         21
AP07P10YP04P10YP08O29YP02O28VN96P131   L036N60,N32N39,N46N53,040040104000212TAP3
 236  1 25          C     XXX,YYY                                                7  2561  C O28 O29           22
 237  1 26          BH    *&5                                                    5  2568  B N77 U             22
 238  1 27          B     MODEXT                                                 4  2573  B N92               22
 239  1 28          SW    RESULT-1                                               4  2577  , P10               22
 240  1 29          A     @|0@,RESULT                                            7  2581  A O87 P11           22
 241  1 30          CW    RESULT-1                                               4  2588  ) P10               22
 242  1 31   MODEXT B     000                                                    4  2592  B 000               22
CO28O29BN77UBN92,P10AO87P11)P10B000    L035N95,N68N73,N77N81,N88N92104000222TAP3
 243  1 32          BAV   MODEXT                                                 5  2596  B N92 Z             23
 244  1 33          C     XXX,YYY                                                7  2601  C O28 O29           23
 245  1 34          BH    MODEXT                                                 5  2608  B N92 U             23
 246  1 35          SW    RESULT-1                                               4  2613  , P10               23
 247  1 36          A     @?0@,RESULT                                            7  2617  A O89 P11           23
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 SEQ PG LIN  LABEL  OP    OPERANDS                                    SFX CT  LOCN  INSTRUCTION TYPE  CARD
 248  1 37          B     MODEXT-4                                         4  2624  B N88               23
 249  1 371  XXX    DCW   @2@                                              1  2628                      23
BN92ZCO28O29BN92U,P10AO89P11BN882      L033O28,O01O08,O13O17,O24O28104000232TAP3
 250  1 372  YYY    DCW   @2@                                              1  2629                      24
 251  1 38   DECR   SW    NEG                                              4  2630  , P13               24
 252  1 39          A     @999@,HOLD                                       7  2634  A O92 P07           24
 253  1 40          A     @?01@,HOLD                                       7  2641  A O95 P07           24
 254  1 41          B     SETINC                                           4  2648  B N11               24
 255  1 42   MODALT SBR   MODEXT&3                                         4  2652  H N95               24
 256  1 43          BAV   *&1                                              5  2656  B O61 Z             24
2,P13AO92P07AO95P07BN11HN95BO61Z       L032O60,O30O34,O41O48,O52O56104000242TAP3
 257  1 44          CW    NEG                                              4  2661  ) P13               25
 258  1 45          B     SETINC-16                                        4  2665  B M95               25
 259  1 46   MODZER MLC   HOLD,RESULT-1                                    7  2669  M P07 P10           25
 260  1 47          B     MODEXT                                           4  2676  B N92               25
 261  1 48   HALT4  H                                                      1  2680  .                   25
 262  1 49   *
 263  1 50   *                        HOUSEKEEPING
 264  1 51   *
 265  1 52          ORG   334                                                    0334
)P13BM95MP07P10BN92.                   L020O80,O65O69,O76O80,040040104000252TAP3
 266  1 53          B     HSKPG             PIVOT BRANCH TO HOUSEKEEPING       4  0334  B !98               26
 267  1 54   *                        CREATE ALL WORK AREAS - OVERLAID BY INSTRS
 268  1 55          NOP   LOCCTR#3,LITTOT#3                                7  0338  N O98 P01           26
 269  1 56          NOP   ADDR#3,HOLD#3                                    7  0345  N P04 P07           26
 270                NOP   RESULT#4                                         4  0352  N P11               26
 271                NOP   LITORG#1,NEG#1                                   7  0356  N P12 P13           26
 272  1 61   *                        GET INPUT RECORD
 273  1 62          ORG   338                                                    0338
B!98NO98P01NP04P07NP11NP12P13          L029362,338345,352356,040040104000262TAP3
 274  1 63   GETRCD RTW   2,RECORD                                         8  0338  L %U2 !98 R         27
 275  1 64          BER   TPERR                                            5  0346  B 201 L             27
 276  1 65          BEF   IPEOR                                            5  0351  B !64 K             27
 277  1 66          B     PUTRCD&7,LABEL-5,*      BYPASS COMMENTS CARD     8  0356  B 568 J03 *         27
 278  1 67          SW    LABEL-5                                          4  0364  , J03               27
 279                BW    PUTRCD&7,RECORD&3                                8  0368  V 568 J01 1         27
L%U2!98RB201LB!64KB568J03*,J03V568J011 L038375,346351,356364,368040104000272TAP3
 280                BW    GETLOC,RECORD&1                                  8  0376  V 590 !99 1         28
 281                BW    CNTRL2,FULL                                      8  0384  V 608 194 1         28
 282         PROCES BW    SUBSEQ,DA                                        8  0392  V 833 197 1         28
 283  1 70   INSTR  BW    CNTRL,RECORD       TEST FOR CONTROL STATEMENT    8  0400  V /29 !98 1         28
V590!991V6081941V8331971V/29!981       L032407,384392,400040,040040104000282TAP3
 284  1 71          BCE   DECLAR,ICOUNT,                                   8  0408  B 640 J85           29
 285  1 72   *                        PROCESS IMPERATIVE COMMAND
 286  1 73   IMPER  BCE   *&13,LABEL-5,                                    8  0416  B 436 J03           29
 287  1 74          BWZ   PRCLIT,LABEL-5,2   BYPASS ACTUAL LOCATION ASSIGNMENT  8  0424  V 483 J03 2    29
 288  1 75          B     SETLAB                                           4  0432  B K76               29
 289  1 76          LCA   LOCCTR,LOCATN                                    7  0436  L O98 J92           29
B640J85 B436J03 V483J032BK76LO98J92    L035442,416424,432436,040040104000292TAP3
 290  1 79          ZA    ICOUNT,HOLD        STEP LOCATION COUNTER BY LENGTH  7  0443  ? J85 P07        30
 291  1 80          MZ    @ @,HOLD                                         7  0450  Y O85 P07           30
 292  1 81          MLC   LOCCTR,ADDR                                      7  0457  M O98 P04           30
 293  1 82          B     MODALT                                           4  0464  B O52               30
 294  1 83          MLC   RESULT-1,LOCCTR                                  7  0468  M P10 O98           30
?J85P07YO85P07MO98P04BO52MP10O98       L032474,450457,464468,040040104000302TAP3
 295  1 84          BCE   PUTRCD,LITCNT,                                   8  0475  B 561 J88           31
 296  1 85   *                        TEST FOR LITERALS
 297  1 86   PRCLIT MLC   @000@,X1                                         7  0483  M O83 089           31
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 SEQ PG LIN  LABEL  OP    OPERANDS                                            SFX CT  LOCN  INSTRUCTION TYPE  CARD
 298  1 87          BCE   LITERL,AADDR,L     NUMERIC LITERAL                          8  0490  B 937 J79 L         31
 299  1 88          BCE   ALFLIT,AADDR,F     ALPHANUMERIC LITERAL                     8  0498  B |86 J79 F         31
 300  1 89          BCE   AREA,AADDR,W       LITERAL AREA                             8  0506  B /06 J79 W         31
B561J88 MO83089B937J79LB|86J79FB/06J79WL039513,483490,498506,040040104000312TAP3
 301  1 90          BCE   ADCON,AADDR,C      ADDRESS CONSTANT                         8  0514  B /21 J79 C         32
 302  1 91          MLC   @030@,X1                                                    7  0522  M P16 089           32
 303  1 92          BCE   LITERL,BADDR,L     NUMERIC LITERAL                          8  0529  B 937 J80 L         32
 304  1 93          BCE   ALFLIT,BADDR,F     ALPHANUMERIC LITERAL                     8  0537  B |86 J80 F         32
 305  1 94          BCE   AREA,BADDR,W       LITERAL AREA                             8  0545  B /06 J80 W         32
B/21J79CMP16089B937J80LB|86J80FB/06J80WL039552,522529,537545,040040104000322TAP3
 306  1 95          BCE   ADCON,BADDR,C      ADDRESS CONSTANT                         8  0553  B /21 J80 C         33
 307  1 96   *                  PUT OUTPUT RECORD
 308         PUTRCD LCA   LOCCTR,HLDLOC                                               7  0561  L O98 003           33
 309                WTW   1,RECORD                                                    8  0568  L %U1 !98 W         33
 310  1 98          BER   TPERR                                                       5  0576  B 201 L             33
 311  1 99          BEF   *&1                                                         5  0581  B 586 K             33
 312  2 00          B     GETRCD                                                      4  0586  B 338               33
 313  2 01   *                  PROCESS DECLARATIVE STATEMENTS
 314         *
B/21J80CLO98003L%U1!98WB201LB586KB338  L037589,561568,576581,586040104000332TAP3
 315         GETLOC MLC   HLDLOC,LOCCTR                                               7  0590  M 003 O98           34
 316                CW    FULL,RECORD&1                                               7  0597  ) 194 !99           34
 317  2 014         B     MOVXX                                                       4  0604  B I00               34
 318         *
 319         CNTRL2 BW    *&5,RECORD                                                  8  0608  V 620 !98 1         34
 320                B     PUTRCD&7                                                    4  0616  B 568               34
 321                BCE   PUTRCD&7,PARAMT,*                                           8  0620  B 568 J93 *         34
M003O98)194!99BI00V620!981B568B568J93* L038627,597604,608616,620040104000342TAP3
 322                BCE   CNTRL,AADDR,S                                               8  0628  B /29 J79 S         35
 323                B     PUTRCD&7                                                    4  0636  B 568               35
 324         *
 325  2 02   DECLAR C     OPER,@DA  @                                                 7  0640  C J16 P20           35
 326  2 03          BE    DALINE                                                      5  0647  B 755 S             35
 327  2 04          MLC   LITCNT,HOLD                                                 7  0652  M J88 P07           35
 328  2 05          S     @1@,HOLD           STEP LOCATION COUNTER BY LENGTH-1        7  0659  S P21 P07           35
B/29J79SB568CJ16P20B755SMJ88P07SP21P07 L038665,636640,647652,659040104000352TAP3
 329  2 06          MZ    @ @,HOLD                                                    7  0666  Y O85 P07           36
 330  2 07          MLC   LOCCTR,ADDR                                                 7  0673  M O98 P04           36
 331  2 08          B     MODALT                                                      4  0680  B O52               36
 332  2 09          BCE   *&9,LABEL-5,                                                8  0684  B 700 J03           36
 333  2 10          BWZ   PUTRCD,LABEL-5,2   TEST FOR ACTUAL ADDRESS ASSNMT           8  0692  V 561 J03 2         36
YO85P07MO98P04BO52B700J03 V561J032     L034699,673680,684692,040040104000362TAP3
 334  2 11          MLC   RESULT-1,LOCCTR                                             7  0700  M P10 O98           37
 335  2 12          MLC   LOCCTR,LOCATN                                               7  0707  M O98 J92           37
 336  2 13          BCE   *&5,LABEL-5,                                                8  0714  B 726 J03           37
 337  2 14          B     SETLAB             STORE LABEL & LOCATION IN TABLE          4  0722  B K76               37
 338  2 15   UPDLOC ZA    LITCNT,HOLD                                                 7  0726  ? J88 P07           37
MP10O98MO98J92B726J03 BK76?J88P07      L033732,707714,722726,040040104000372TAP3
 339  2 16          MZ    @ @,HOLD                                                    7  0733  Y O85 P07           38
 340  2 17          B     MODALT             STEP LOCATION COUNTER BY LENGTH          4  0740  B O52               38
 341  2 18          MLC   RESULT-1,LOCCTR                                             7  0744  M P10 O98           38
 342  2 21          B     PUTRCD                                                      4  0751  B 561               38
 343  2 22   *                  PROCESS DA HEADER
 344         DALINE LCA   LOCCTR,SAVLOC                                               7  0755  L O98 006           38
 345  2 24          SW    DA                                                          4  0762  , 197               38
YO85P07BO52MP10O98B561LO98006,197      L033765,740744,751755,762040104000382TAP3
 346  2 25          MZ    ACTOP,LOCCTR-1     GET INDEXING FOR LABTBL                  7  0766  Y J89 O97           39
 347  2 26          MLC   SAVLOC,ADDR                                                 7  0773  M 006 P04           39
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 SEQ PG LIN  LABEL  OP    OPERANDS                                           SFX CT  LOCN  INSTRUCTION TYPE  CARD
 348  2 27          BCE   *&13,LABEL-5,                                           8  0780  B 800 J03           39
 349  2 28          BWZ   ACTDA,LABEL-5,2                                         8  0788  V 818 J03 2         39
 350  2 29          B     SETLAB                                                  4  0796  B K76               39
YJ89O97M006P04B800J03 V818J032BK76     L034799,773780,788796,040040104000392TAP3
 351  2 30          MLC   SAVLOC,LOCATN                                           7  0800  M 006 J92           40
 352  2 31          MLC   LITCNT,SAVLOC      SAVE TOTAL LENGTH OF DA              7  0807  M J88 006           40
 353                B     PUTRCD                                                  4  0814  B 561               40
 354  2 33   *              DA ENTRY WITH ACTUAL ADDRESS ASSIGNMENT
 355         ACTDA  MLC   LOCATN,ADDR                                             7  0818  M J92 P04           40
 356  2 35          SW    ACTDA&1            SET ACT. ADDR. SWITCH                4  0825  , 819               40
 357  2 36          B     PUTRCD                                                  4  0829  B 561               40
 358  2 37   *              PROCESS SUBSEQUENT ENTRIES FOR DA
M006J92MJ88006B561MJ92P04,819B561      L033832,807814,818825,829040104000402TAP3
 359  2 38   SUBSEQ BW    DASUB,PARAMT&65    TEST FOR DA SUBSEQUENT ENTRY         8  0833  V 889 K58 1         41
 360  2 39          BW    ACTOUT,ACTDA&1     NOT SUBSEQ - TEST ACTUAL ADDR SW     8  0841  V 878 819 1         41
 361  2 40          MLC   SAVLOC,HOLD                                             7  0849  M 006 P07           41
 362  2 41          B     MODALT                                                  4  0856  B O52               41
 363  2 42          MLC   RESULT-1,LOCCTR   STEP LOCATION COUNTER BY DA LENGTH    7  0860  M P10 O98           41
V889K581V8788191M006P07BO52MP10O98     L034866,841849,856860,040040104000412TAP3
 364  2 43          CW    DA,ACTDA&1         RESET SWITCHES                       7  0867  ) 197 819           42
 365  2 44          B     INSTR              BRANCH TO PROCESS NEW ENTRY          4  0874  B 400               42
 366  2 45   ACTOUT MLC   SAVLOC,LOCCTR      RESTORE ORIGINAL LOCATION COUNTER    7  0878  M 006 O98           42
 367  2 46          B     ACTOUT-11                                               4  0885  B 867               42
 368  2 47   *                        PROCESS DA SUBSEQUENT ENTRY
 369  2 48   DASUB  MLC   LOCATN,HOLD        GET RELATIVE POSITION IN AREA        7  0889  M J92 P07           42
 370  2 49          B     MODALT             APPLY IT TO DA BASE ADDRESS          4  0896  B O52               42
)197819B400M006O98B867MJ92P07BO52      L033899,874878,885889,896040104000422TAP3
 371  2 50          MLC   RESULT-1,LOCCTR                                         7  0900  M P10 O98           43
 372  2 52          MLC   LOCCTR,LOCATN                                           7  0907  M O98 J92           43
 373  2 51          MZ    ACTOP,LOCCTR-1     GET INDEXING FOR LABTBL              7  0914  Y J89 O97           43
 374  2 53          BCE   *&5,LABEL-5,                                            8  0921  B 933 J03           43
 375  2 54          B     SETLAB                                                  4  0929  B K76               43
 376                B     PUTRCD                                                  4  0933  B 561               43
 377  2 57   *                        PROCESS GENERATED LITERALS
MP10O98MO98J92YJ89O97B933J03 BK76B561  L037936,907914,921929,933040104000432TAP3
 378  2 58   LITERL SBR   LITEXT&3                                                4  0937  H 959               44
 379  2 59          BCE   SHORT,PARAMT&6&X1,                                      8  0941  B 960 JZ9           44
 380  2 60   *                        TLU SHORT LITERALS FOR DUPLICATES
 381  2 61   LITOUT A     PARAMT&29&X1,LITTOT                                     7  0949  A KS2 P01           44
 382  2 62   LITEXT B     0                                                       4  0956  B 000               44
 383  2 63   SHORT  LCA   PARAMT&5&X1,LABTBL-3&X3                                 7  0960  L JZ8 QA0           44
 384  2 64          B     TLULAB                                                  4  0967  B L59               44
 385  2 65          B     INTABL                                                  4  0971  B |22               44
H959B960JZ9 AKS2P01B000LJZ8QA0BL59B|22 L038974,941949,956960,967971104000442TAP3
 386  2 66   FIRST  MLC   LABEL,HLDLAB#6     FIRST OCCURRENCE OF LITERAL          7  0975  M J08 P27           45
 387  2 67          A     PARAMT&29&X1,LITTOT                             )))     7  0982  A KS2 P01           45
 388  2 68          MLC   PARAMT&5&X1,LABEL                                       7  0989  M JZ8 J08           45
 389  2 70          B     SETLAB             PUT SHORT LITERAL IN SYMBOL TABLE    4  0996  B K76               45
 390  2 75          LCA   LITTOT,LABTBL-9&X3                                      7  1000  L P01 Q?4           45
 391  2 76          SW    LABTBL-17&X3       MARK AS RELATIVE ENTRY               4  1007  , PI6               45
MJ08P27AKS2P01MJZ8J08BK76LP01Q?4,PI6   L036|10,982989,996|00,|07040104000452TAP3
 392  2 77          MLC   HLDLAB,LABEL                                   )))      7  1011  M P27 J08           46
 393  2 78          B     LITEXT                                                  4  1018  B 956               46
 394  2 79   INTABL SW    LABTBL-8&X3        DUPLICATED SHORT LITERAL             4  1022  , Q?5               46
 395  2 80          BWZ   TABLYY,092,2                                            8  1026  V P58 092 2         46
 396  2 81          B     TABLZZ                                                  4  1034  B P70               46
 397  2 82   TABLXX CW    LABTBL-8&X3                                             4  1038  ) Q?5               46
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 SEQ PG LIN  LABEL  OP    OPERANDS                                            SFX CT  LOCN  INSTRUCTION TYPE  CARD
 398  2 83          S     PARAMT&29&X1,LITCNT   DUPLICATED WITHIN SAME LITERAL     7  1042  S KS2 J88           46
MP27J08B956,Q?5VP580922BP70)Q?5SKS2J88 L038|48,|18|22,|26|34,|38|42104000462TAP3
 399  2 84          MZ    @ @,LITCNT               AREA, NOT PREVIOUS ONE          7  1049  Y O85 J88           47
 400  2 85          BCE   *&12,X1-1,3        SET LITERAL FOR SYMBOLIC TLU          8  1056  B |75 088 3         47
 401  2 86          MLC   @Q@,AADDR                                                7  1064  M P28 J79           47
 402  2 87          B     LITEXT                                                   4  1071  B 956               47
 403  2 88          MLC   @Q@,BADDR                                       )))      7  1075  M P28 J80           47
 404  2 89          B     LITEXT                                                   4  1082  B 956               47
 405  2 95   *                  ALPHANUMERIC LITERAL
YO85J88B|750883MP28J79B956MP28J80B956  L037|85,|56|64,|71|75,|82040104000472TAP3
 406  2 96   ALFLIT SBR   LITEXT&3                                                 4  1086  H 959               48
 407  2 97          C     PARAMT&29&X1,@05@                                        7  1090  C KS2 P30           48
 408  2 98          BH    SHORT              TEST FOR SHORT A/N LITERAL            5  1097  B 960 U             48
 409  2 99          B     LITOUT                                                   4  1102  B 949               48
 410  3 00   *                  LITERAL AREA OF FORM SYMBOL#10
 411  3 01   AREA   SBR   LITEXT&3                                                 4  1106  H 959               48
 412  3 02          LCA   PARAMT&9&X1,PARAMT&29&X1                                 7  1110  L K|2 KS2           48
 413  3 03          B     FIRST                                                    4  1117  B 975               48
 414  3 04   *                  ADDRESS CONSTANT
H959CKS2P30B960UB949H959LK|2KS2B975    L035/20,|90|97,/02/06,/10/17104000482TAP3
 415  3 05   ADCON  SBR   LITEXT&3                                                 4  1121  H 959               49
 416  3 06          B     LITOUT                                                   4  1125  B 949               49
 417  3 07   *                  TEST FOR CONTROL STATEMENTS
 418  3 08   CNTRL  BCE   ORIGIN,OPER-3,O    ORIGIN CONTROL STATEMENT              8  1129  B /65 J13 O         49
 419  3 09          BCE   LTORG,OPER-3,L     LTORG CONTROL STATEMENT               8  1137  B U97 J13 L         49
 420  3 10          BCE   EQUATE,OPER-2,Q   EQUATE STATEMENT                       8  1145  B X61 J14 Q         49
H959B949B/65J13OBU97J13LBX61J14Q       L032/52,/25/29,/37/45,040040104000492TAP3
 421  3 11          BCE   ELTG,OPER-3,E     EX OR END - PROCESS AS LTORG           8  1153  B X02 J13 E         50
 422  3 12          B     PUTRCD            NO PROCESSING REQUIRED                 4  1161  B 561               50
 423  3 13   *                  PROCESS ORIGIN CONTROL STATEMENTS
 424         ORIGIN BCE   DECODO,LABEL-5,                                          8  1165  B /85 J03           50
 425                BW    DECODO,FULL                                              8  1173  V /85 194 1         50
 426  3 16          B     SETLAB                                                   4  1181  B K76               50
BX02J13EB561B/85J03 V/851941BK76       L032/84,/61/65,/73/81,040040104000502TAP3
 427         DECODO BCE   ACTORG,AADDR,A                                           8  1185  B S33 J79 A         51
 428  3 18          BCE   SYMORG,AADDR,S     SYMBOLIC ADDRESS                      8  1193  B S58 J79 S         51
 429  3 20          BCE   PUTRCD,AADDR,D     ALREADY PROCESSED                     8  1201  B 561 J79 D         51
 430                BCE   SETORG,AADDR,P                                           8  1209  B U86 J79 P         51
BS33J79ABS58J79SB561J79DBU86J79P       L032S16,/93S01,S09040,040040104000512TAP3
 431  3 19          BCE   ASTORG,AADDR,      BLANK OPERAND                         8  1217  B T85 J79           52
 432  3 21          SW    ERRPOS                                                   4  1225  , J84               52
 433  3 22          B     PUTRCD                                                   4  1229  B 561               52
 434  3 23   *                  ORIGIN WITH ACTUAL ADDRESS OPERAND
 435  3 24   ACTORG MLC   @D@,AADDR          MARK AS PROCESSED                     7  1233  M P31 J79           52
 436  3 25          MLC   PARAMT&8,LOCCTR                                          7  1240  M K01 O98           52
 437  3 26          MLC   LOCCTR,LOCATN                                            7  1247  M O98 J92           52
BT85J79 ,J84B561MP31J79MK01O98MO98J92  L037S53,S25S29,S33S40,S47040104000522TAP3
 438  3 28          B     PUTRCD                 ABSOLUTE MODE                     4  1254  B 561               53
 439  3 29   *                  ORIGIN WITH SYMBOLIC OPERAND
 440  3 30   SYMORG BCE   ASTORG,PARAMT,*    TEST FOR * OPERAND                    8  1258  B T85 J93 *         53
 441  3 31          LCA   PARAMT&5,LABTBL-3&X3                                     7  1266  L J98 QA0           53
 442  3 32          B     TLULAB            TLU SYMBOL IN SYMBOL TABLE             4  1273  B L59               53
 443  3 33          B     PREVLB             FOUND SYMBOL IN SYMBOL TABLE          4  1277  B T11               53
 444  3 34   *                  SYMBOL IN OPERAND NOT PREVIOUSLY DEFINED
 445         NOPREV BW    PUTRCD&7,FULL                                            8  1281  V 568 194 1         53
B561BT85J93*LJ98QA0BL59BT11V5681941    L035S88,S58S66,S73S77,S81040104000532TAP3
 446  3 37          LCA   @000@,LOCATN                                     )))     7  1289  L O83 J92           54
 447  3 38          MLC   @000@,LOCCTR       SET BASE ZERO FOR LOCATION COUNTR     7  1296  M O83 O98           54
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 SEQ PG LIN  LABEL  OP    OPERANDS                                             SFX CT  LOCN  INSTRUCTION TYPE  CARD
 448               SW    ERRPOS                                                     4  1303  , J84              54
 449               B     PUTRCD                                                     4  1307  B 561              54
 450  3 49   *                       SYMBOL IN OPERAND WAS PREVIOUSLY DEFINED
 451         PREVLB MLC   @P@,AADDR                                                  7  1311  M P32 J79          54
 452  3 52          MLC   LABTBL&X2,LOCCTR                                           7  1318  M QJ3 O98          54
LO83J92MO83O98,J84B561MP32J79MQJ3O98   L036T24,S96T03,T07T11,T18040104000542TAP3
 453  3 53          MLC   LOCCTR,LOCATN                                              7  1325  M O98 J92          55
 454  3 54          BCE   NOSADJ,PARAMT&10,                                          8  1332  B T58 K03          55
 455  3 55          MLC   LOCCTR,ADDR                                                7  1340  M O98 P04          55
 456  3 56          B     MODADD             APPLY CHARACTER ADJUSTMENT              4  1347  B M51              55
 457  3 57          MLC   RESULT-1,LOCCTR                                            7  1351  M P10 O98          55
MO98J92BT58K03 MO98P04BM51MP10O98      L033T57,T32T40,T47T51,040040104000552TAP3
 458  3 58   NOSADJ MLC   LOCCTR,LOCATN                                              7  1358  M O98 J92          56
 459  3 60          BW    LTGOUT,LITORG      IF SYMBOLIC LTORG, RETURN TO LTOR       8  1365  V V81 P12 1        56
 460                BW    PUTRCD&7,FULL                                              8  1373  V 568 194 1        56
 461  3 61          B     PUTRCD                                                     4  1381  B 561              56
 462  3 62   *                       ORIGIN WITH ASTERISK SYMBOLIC
 463  3 63   ASTORG C     @&X00@,PARAMT&13  TEST FOR *&X00 OPERAND                   7  1385  C P36 K06          56
 464  3 64          BE    CENORG                                                     5  1392  B U34 S            56
MO98J92VV81P121V5681941B561CP36K06BU34SL039T96,T65T73,T81T85,T92040104000562TAP3
 465  3 65          MLC   LOCCTR,ADDR                                                7  1397  M O98 P04          57
 466  3 68          BCE   *&12,PARAMT&10,                                  )))       8  1404  B U23 K03          57
 467  3 69          B     MODADD             APPLY CHARACTER ADJUSTMENT              4  1412  B M51              57
 468  3 70          MLC   RESULT-1,LOCCTR                                            7  1416  M P10 O98          57
 469  3 71          LCA   LOCCTR,LOCATN                                    )))       7  1423  L O98 J92          57
 470  3 73          B     PUTRCD                                                     4  1430  B 561              57
 471  3 74   *                       ORIGIN WITH *&X00 OPERAND
MO98P04BU23K03 BM51MP10O98LO98J92B561  L037U33,U04U12,U16U23,U30040104000572TAP3
 472  3 75   CENORG MLC   @100@,HOLD                                                 7  1434  M P39 P07          58
 473  3 76          MLC   LOCCTR,ADDR                                                7  1441  M O98 P04          58
 474  3 77          B     MODALT                                                     4  1448  B O52              58
 475  3 78          MN    @000@,RESULT-1     GENERATE NEXT 100S ADDRESS              7  1452  D O83 P10          58
 476  3 79          MN                                                               1  1459  D                  58
 477  3 80          MLC   RESULT-1,LOCCTR                                            7  1460  M P10 O98          58
MP39P07MO98P04BO52DO83P10DMP10O98      L033U66,U41U48,U52U59,U60040104000582TAP3
 478  3 81   CEN1   LCA   LOCCTR,LOCATN                                              7  1467  L O98 J92          59
 479  3 89   ORGOUT BW    LTGOUT,LITORG      TEST FOR LTORG SHARING ROUTINE          8  1474  V V81 P12 1        59
 480  3 90          B     PUTRCD                                                     4  1482  B 561              59
 481         *
 482         SETORG MLC   LOCATN,LOCCTR                                              7  1486  M J92 O98          59
 483                B     ORGOUT                                                     4  1493  B U74              59
 484         *
 485  3 91   *                       * PROCESS LTORG CONTROL STATEMENTS
 486  3 92   LTORG  BCE   DECODL,LABEL-5,                                            8  1497  B V17 J03          59
LO98J92VV81P121B561MJ92O98BU74BV17J03  L038V04,U74U82,U86U93,U97040104000592TAP3
 487                BW    DECODL,FULL                                                8  1505  V V17 194 1        60
 488  3 95          B     SETLAB             STORE LABEL AND PREVIOUS LOCATION       4  1513  B K76              60
 489  3 96   DECODL BCE   SYMLTG,AADDR,S     SYMBOLIC ADDRESS                        8  1517  B V65 J79 S        60
 490  3 97          BCE   ACTLTG,AADDR,A     ACTUAL ADDRESS                          8  1525  B X25 J79 A        60
 491  3 99          BCE   PUTRCD,AADDR,D     STATEMENT ALREADY PROCESSED             8  1533  B 561 J79 D        60
VV171941BK76BV65J79SBX25J79AB561J79D   L036V40,V13V17,V25V33,040040104000602TAP3
 492                BCE   SETLIT,AADDR,P                                             8  1541  B X50 J79 P        61
 493  3 98          BCE   ASTLTG,AADDR,      BLANK OPERAND                           8  1549  B W64 J79          61
 494  4 00          SW    ERRPOS            ILLEGAL OPERAND - MARK AS INVALID        4  1557  , J84              61
 495  4 01          B     PUTRCD                                                     4  1561  B 561              61
 496  4 02   *                       SYMBOLIC ADDRESS LTORG
 497  4 03   SYMLTG BCE   ASTLTG,PARAMT,*     TEST FOR * OPERAND                     8  1565  B W64 J93 *        61
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                         1401 TWO-TAPE AUTOCODER, PHASE 3 - JULY 30, 1962 RBR       2TAP3               PAGE    9

 SEQ PG LIN  LABEL  OP    OPERANDS                                          SFX CT  LOCN  INSTRUCTION TYPE  CARD
 498  4 04          SW    LITORG            SET LITORG SWITCH FOR ORG ROUTINE      4  1573  , P12               61
BX50J79PBW64J79 ,J84B561BW64J93*,P12   L036V76,V49V57,V61V65,V73040104000612TAP3
 499  4 05          B     SYMORG             SHARE SYMBOLIC ORG ROUTINE            4  1577  B S58               62
 500         LTGOUT BW    PUTRCD&7,FULL                                            8  1581  V 568 194 1         62
 501                MLC   @|@,LABTBL-5&X3                                          7  1589  M P40 Q?8           62
 502  4 07          MLC   LOCCTR,LABTBL-6&X3                                       7  1596  M O98 Q?7           62
 503  4 08          MLC   LOCCTR,ADDR                                              7  1603  M O98 P04           62
BS58V5681941MP40Q?8MO98Q?7MO98P04      L033W09,V81V89,V96W03,040040104000622TAP3
 504  4 09          MLC   LITTOT,HOLD                                              7  1610  M P01 P07           63
 505  4 10          B     MODALT                                                   4  1617  B O52               63
 506  4 11          MLC   RESULT-1,LOCCTR                                          7  1621  M P10 O98           63
 507  4 12          MLC   LITTOT,LABTBL&X3                                 )))     7  1628  M P01 QA3           63
 508  4 13          MLC   @000@,LITTOT                                     )))     7  1635  M O83 P01           63
 509  4 14          MLC   X3,LASTLT          STORE LAST LTORG POINT        )))     7  1642  M 099 009           63
MP01P07BO52MP10O98MP01QA3MO83P01M099009L039W48,W17W21,W28W35,W42040104000632TAP3
 510  4 15   STORLT CW    LITORG             RESET LITORG SWITCH                   4  1649  ) P12               64
 511  4 18          MLC   &PUTRCD,SETEXT&3                                         7  1653  M P43 L40           64
 512  4 19          B     TSTLMT            SET ENTRY INTO SYMBOL TABLE            4  1660  B L14               64
 513  4 26   *                        LTORG WITH * OPERAND
 514  4 27   ASTLTG C     PARAMT&13,@&X00@   TEST FOR *&X00 OPERAND                7  1664  C K06 P36           64
 515  4 28          BE    CENLTG                                                   5  1671  B X17 S             64
 516  4 29          MLC   LOCCTR,ADDR                                              7  1676  M O98 P04           64
)P12MP43L40BL14CK06P36BX17SMO98P04     L034W82,W53W60,W64W71,W76040104000642TAP3
 517  4 30          BCE   ELTG,PARAMT&10,                                          8  1683  B X02 K03           65
 518  4 31          B     MODADD            APPLY CHARACTER ADJUSTMENT             4  1691  B M51               65
 519  4 32          MLC   RESULT-1,LOCCTR                                          7  1695  M P10 O98           65
 520  4 33   ELTG   LCA   LOCCTR,LOCATN      SET UP TABLE ENTRY                    7  1702  L O98 J92           65
 521  4 35          CW    LABTBL-5&X3                                              4  1709  ) Q?8               65
 522                B     LTGOUT                                                   4  1713  B V81               65
 523  4 41   CENLTG SW    LITORG                                                   4  1717  , P12               65
BX02K03 BM51MP10O98LO98J92)Q?8BV81,P12 L038X20,W91W95,X02X09,X13X17104000652TAP3
 524  4 42          B     CENORG                                                   4  1721  B U34               66
 525  4 43   ACTLTG MLC   @D@,AADDR                                                7  1725  M P31 J79           66
 526  4 44          MLC   PARAMT&8,LOCATN                                          7  1732  M K01 J92           66
 527  4 46          MLC   LOCATN,LOCCTR                                            7  1739  M J92 O98           66
 528  4 47          B     LTGOUT                                                   4  1746  B V81               66
 529         *
 530         SETLIT MLC   LOCATN,LOCCTR                                            7  1750  M J92 O98           66
BU34MP31J79MK01J92MJ92O98BV81MJ92O98   L036X56,X25X32,X39X46,X50040104000662TAP3
 531                B     LTGOUT                                                   4  1757  B V81               67
 532         *
 533  4 48   *                        PROCESS EQUATE ENTRIES
 534         EQUATE BCE   SYMEQU,AADDR,S                                           8  1761  B Y68 J79 S         67
 535  4 50          BCE   SYMEQU,AADDR,S                                           8  1769  B Y68 J79 S         67
 536  4 51          BCE   ACTEQU,AADDR,A                                           8  1777  B Y17 J79 A         67
 537  4 52          BCE   MCHEQU,AADDR,M                                           8  1785  B Y28 J79 M         67
BV81BY68J79SBY68J79SBY17J79ABY28J79M   L036X92,X61X69,X77X85,040040104000672TAP3
 538  4 53          BCE   PUTRCD,AADDR,D                                           8  1793  B 561 J79 D         68
 539  4 54          BCE   PROCEQ,AADDR,E                                           8  1801  B !53 J79 E         68
 540  4 55          SW    ERRPOS                                                   4  1809  , J84               68
 541  4 56          B     PUTRCD                                                   4  1813  B 561               68
 542  4 57   ACTEQU MLC   PARAMT&8,ADDR                                            7  1817  M K01 P04           68
 543  4 58          B     ADJEQU                                                   4  1824  B Z36               68
B561J79DB!53J79E,J84B561MK01P04BZ36    L035Y27,Y01Y09,Y13Y17,Y24040104000682TAP3
 544  4 59   MCHEQU MLC   PARAMT&2,ADDR                                            7  1828  M J95 P04           69
 545  4 60          B     PUTEQU                                                   4  1835  B !13               69
 546  4 61   ASTEQU MLC   LOCCTR,ADDR                                              7  1839  M O98 P04           69
 547  4 62          ZS    @1@,HOLD                                                 7  1846  ! P21 P07           69
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                           1401 TWO-TAPE AUTOCODER, PHASE 3 - JULY 30, 1962 RBR       2TAP3              PAGE   10

 SEQ PG LIN  LABEL  OP    OPERANDS                                            SFX CT  LOCN  INSTRUCTION TYPE  CARD
 548  4 63          B     MODALT                                                   4  1853  B O52                69
 549  4 64          MLC   RESULT-1,ADDR                                            7  1857  M P10 P04            69
MJ95P04B!13MO98P04!P21P07BO52MP10P04   L036Y63,Y35Y39,Y46Y53,Y57040104000692TAP3
 550  4 67          B     ADJEQU                                                   4  1864  B Z36                70
 551  4 68   SYMEQU BCE   ASTEQU,PARAMT,*                                          8  1868  B Y39 J93 *          70
 552  4 69          LCA   PARAMT&5,LABTBL-3&X3                                     7  1876  L J98 QA0            70
 553  4 70          B     TLULAB                                                   4  1883  B L59                70
 554  4 71          B     HITEQU                                                   4  1887  B Z14                70
 555  4 72          BW    PUTRCD&7,FULL                                            8  1891  V 568 194 1          70
 556  4 73          SW    ERRPOS-2                                                 4  1899  , J82                70
BZ36BY39J93*LJ98QA0BL59BZ14V5681941,J82L039Z02,Y68Y76,Y83Y87,Y91Y99104000702TAP3
 557  4 75          MLC   @###@,LOCATN                                             7  1903  M P46 J92            71
 558  4 76          B     PUTRCD                                                   4  1910  B 561                71
 559  4 77   HITEQU BW    ADJEQU,LABTBL-8&X2                                       8  1914  V Z36 Q!5 1          71
 560  4 78          MLC   LABTBL&X2,ADDR                                           7  1922  M QJ3 P04            71
 561  4 79          MLC   @E@,AADDR                                                7  1929  M P47 J79            71
MP46J92B561VZ36Q!51MQJ3P04MP47J79      L033Z35,Z10Z14,Z22Z29,040040104000712TAP3
 562  4 80   ADJEQU MLC   @000@,X2                                                 7  1936  M O83 094            72
 563  4 81          MLC   @000@,X1                                                 7  1943  M O83 089            72
 564  4 82          BCE   PUTEQU,PARAMT&10,                                        8  1950  B !13 K03            72
 565  4 83          BCE   INDEQU,PARAMT&11,X                                       8  1958  B Z92 K04 X          72
 566  4 84          B     MODADD                                                   4  1966  B M51                72
MO83094MO83089B!13K03 BZ92K04XBM51     L034Z69,Z43Z50,Z58Z66,040040104000722TAP3
 567  4 85          MLC   RESULT-1,ADDR                                            7  1970  M P10 P04            73
 568  4 86          MLC   @010@,X2                                                 7  1977  M P50 094            73
 569  4 87          BCE   PUTEQU,PARAMT&20,                                        8  1984  B !13 K13            73
 570  4 88   INDEQU MLC   @000@,X1                                                 7  1992  M O83 089            73
 571  4 89          MN    PARAMT&12&X2,X1                                          7  1999  D K!5 089            73
MP10P04MP50094B!13K13 MO83089DK!5089   L036!05,Z77Z84,Z92Z99,040040104000732TAP3
 572  4 90          MZ    ZONE&X1,ADDR-1                                           7  2006  Y KX1 P03            74
 573  4 91   PUTEQU MLC   ADDR,LOCATN                                              7  2013  M P04 J92            74
 574  4 92          MLC   &PUTRCD,SETEXT&3                                         7  2020  M P53 L40            74
 575                BW    PUTRCD&7,FULL                                            8  2027  V 568 194 1          74
 576                MLC   LABEL,LABTBL-3&X3                                        7  2035  M J08 QA0            74
YKX1P03MP04J92MP53L40V5681941MJ08QA0   L036!41,!13!20,!27!35,040040104000742TAP3
 577  4 95          MLC   ADDR,LABTBL&X3                                           7  2042  M P04 QA3            75
 578  4 96          B     TSTLMT                                                   4  2049  B L14                75
 579  4 97   PROCEQ MLC   LOCATN,ADDR                                              7  2053  M J92 P04            75
 580  4 98          B     PUTEQU                                                   4  2060  B !13                75
 581  4 99   *
 582  5 00   *                        END OF REEL ON INPUT TAPE # 2
 583  5 01   IPEOR  RWD   2                                                        5  2064  U %U2 R              75
 584  5 02          WTM   1                                                        5  2069  U %U1 M              75
 585  5 03          RWD   1                                                        5  2074  U %U1 R              75
MP04QA3BL14MJ92P04B!13U%U2RU%U1MU%U1R  L037!78,!49!53,!60!64,!69!74104000752TAP3
 586  5 04          MLC   @4@,SEEK                                                 7  2079  M O84 125            76
 587  5 05          CW    PARTBL&90,LABTBL&X3                                      7  2086  ) K69 QA3            76
 588  5 06          B     LOAD                                                     4  2093  B 100                76
 589  5 07          H                                                              1  2097  .                    76
 590  5 08   *                        END OF REEL ON OUTPUT TAPE # 1
 591  5 09   *                                ** IMPOSSIBLE CONDITION **
 592  5 10   *
 593  5 11   *                        TAPE RECORD AREA
 594  5 12   *
 595  5 13   RECORD DA    1X80,|                                                      2098   2178                76
MO84125)K69QA3B100.                    L019!97,!86!93,!97!98,040040104000762TAP3
                    DC    @|@                                                      1  2178             RMARK   77
 596  5 14   PARTBL DA    1X90,|                                                      2179   2269                77
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                          1401 TWO-TAPE AUTOCODER, PHASE 3 - JULY 30, 1962 RBR       2TAP3              PAGE   11

 SEQ PG LIN  LABEL  OP    OPERANDS                                          SFX CT  LOCN  INSTRUCTION TYPE  CARD
 597  5 15   AADDR        1,1                                                       2179               FIELD   77
 598  5 16   BADDR        2,2                                                       2180               FIELD   77
 599  5 17   ERRPOS       6                                                         2184               SBFLD
 600  5 18   ICOUNT       7,7                                                       2185               FIELD   77
|                                    L001J78)J78J78,J79J79,J80J85104000772TAP3
 601  5 19   LITCNT       8,10                                                      2188               FIELD   78
 602  5 20   ACTOP        11,11                                                     2189               FIELD   78
 603  5 21   LOCATN       12,14                                                     2192               FIELD   78
 604  5 22   PARAMT       15,15                                                     2193               FIELD   78
 605  5 23   AOPND        85,87                                                     2265               FIELD   78
 606  5 24   BOPND        88,90                                                     2268               FIELD   78
                                     L001001,J86J89,J90J93,K63K66104000782TAP3
                    DC    @|@                                                    1  2269               RMARK   79
 607  5 25   OPER   EQU   RECORD&18                                                 2116
 608  5 26   GPMK   DC    @}@                                                    1  2270                       79
 609  5 27   ZONE   DCW   #1                                                     1  2271                       79
 610  5 28          DCW   @/JA@                                                  3  2274                       79
 611  5 29   *
 612  5 30   *                      HOUSEKEEPING ROUTINE - OVERLAID BY TAPE IO
 613  5 31   *
 614  5 32          ORG   RECORD                                                          2098
|} /JA                               L006K74)K69K69,K71K72,040040104000792TAP3
 615  5 33   HSKPG  MLC   @333@,LOCCTR                                           7  2098  M P56 O98            80
 616  5 34          MLC   @000@,X3                                               7  2105  M O83 099            80
 617  5 35          LCA   @000@,LTTSAV                                           7  2112  L O83 012            80
 618  5 44          CW    DA,FULL                                                7  2119  ) 197 194            80
 619  5 36   *                      HSKPG ENTRY POINT FOR PHASE 7 REITERATION
 620  5 37   HSKPG1 SW    3998                                                   4  2126  , I98                80
 621  5 38          LCA   3998,PARTBL&90                                         7  2130  L I98 K69            80
MP56O98MO83099LO83012)197194,I98LI98K69L039J36,J05J12,J19J26,J30040104000802TAP3
 622  5 39          NOP   000                                                    4  2137  N 000                81
 623  5 391         NOP                                                          1  2141  N                    81
 624  5 40          MLC   LTTSAV,LITTOT      REESTABLISH CUTOFF LITERAL TOTAL    7  2142  M 012 P01            81
 625  5 41          LCA   @000@,LASTLT       SET LAST LITERAL POINT AS ZERO      7  2149  L O83 009            81
 626  5 42   *                      CLEAR ALL SWITCHES FOR PHASE 3 OR 7
 627                SW    RELATV                                                 4  2156  , 196                81
 628  5 45          CW    LITORG,NEG                                             7  2160  ) P12 P13            81
 629  5 46          CW    LITCTL,HIGH3&1                                         7  2167  ) 195 Q02            81
N000NM012P01LO83009,196)P12P13)195Q02  L037J73,J41J42,J49J56,J60J67104000812TAP3
 630  5 47          B     GETRCD                                                 4  2174  B 338                82
 631  5 48          H                                                            1  2178  .                    82
 632  5 49   *
 633  5 50   *                      LITERALS USED BY 2TAP2
 634  5 51          LTORG HALT4                                                           2680
B338.                                L005J78,J78040,040040,040040104000822TAP3
                    DCW   @9@                                                    1  2680               LIT     83
                          @000@                                                  3  2683               LIT     83
                          @4@                                                    1  2684               LIT     83
                          @ @                                                    1  2685               LIT     83
                          @|0@                                                   2  2687               LIT     83
                          @?0@                                                   2  2689               LIT     83
                          @999@                                                  3  2692               LIT     83
90004 |0?0999                        L013O92,O81O84,O85O86,O88O90104000832TAP3
                          @?01@                                                  3  2695               LIT     84
        268  LOCCTR       #03                                                    3  2698               AREA    84
        268  LITTOT       #03                                                    3  2701               AREA    84
        269  ADDR         #03                                                    3  2704               AREA    84
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                                 1401 TWO-TAPE AUTOCODER, PHASE 3 - JULY 30, 1962 RBR       2TAP3               PAGE   12

  SEQ PG LIN  LABEL  OP    OPERANDS                                                   SFX CT  LOCN  INSTRUCTION TYPE  CARD
         269  HOLD         #03                                                             3  2707                AREA    84
         270  RESULT       #04                                                             4  2711                AREA    84
         271  LITORG       #01                                                             1  2712                AREA    84
 ?01                                   L020P12,O96O99,P02P05,P08P12104000842TAP3
         271  NEG          #01                                                             1  2713                AREA    85
                           @030@                                                           3  2716                LIT     85
                           @DA  @                                                          4  2720                LIT     85
                           @1@                                                             1  2721                LIT     85
         386  HLDLAB       #06                                                             6  2727                AREA    85
                           @Q@                                                             1  2728                LIT     85
                           @05@                                                            2  2730                LIT     85
  030DA  1       Q05                   L018P30,P14P17,P21P22,P28P29104000852TAP3
                           @D@                                                             1  2731                LIT     86
                           @P@                                                             1  2732                LIT     86
                           @&X00@                                                          4  2736                LIT     86
                           @100@                                                           3  2739                LIT     86
                           @|@                                                             1  2740                LIT     86
         511               &PUTRCD                                                         3  2743  561           ADCON   86
                           @###@                                                           3  2746                LIT     86
 DP&X00100|561###                      L016P46,P32P33,P37P40,P41P44104000862TAP3
                           @E@                                                             1  2747                LIT     87
                           @010@                                                           3  2750                LIT     87
         574               &PUTRCD                                                         3  2753  561           ADCON   87
                           @333@                                                           3  2756                LIT     87
  635  5 52   HIGH1  H                                                                     1  2757  .                     87
  636  5 53   *
  637  5 54   *
  638  5 55   *                         LABEL TABLE FOR 2TAP2
  639  5 56   *                            * SYMBOL STORED IN FIRST 6 POSITIONS
  640  5 57   *                            * EQUIVALENT ADDRESS STORED IN LAST 3
  641  5 58   *                            * FOR RELATIVE ADDRES, W/M UNDER H.O.
  642  5 59   *                            * NUMERIC LITERALS UNDER 6 CHARACTERS
  643  5 60   *                            * ALPHANUMERIC LITERALS UNDER 5 CHARS
  644  5 61   *                            * RELATIVE ORIGIN ENTRY STORED WITH 3
  645  5 62   *                              POSITION ADJUSTMENT VALUE IN FIRST 3
  646  5 63   *                              AND SYMBOLIC  OPERAND IN LAST 6 WITH
  647  5 64   *                              A W/M UNDER FIRST & FOURTH POSITIONS
  648  5 65          ORG   HIGH3&4                                                                 2805
 E010561333.                           L011P57,P48P51,P54P57,040040104000872TAP3
  649  5 66   LABTBL DC    @         @                                                     9  2813                        88
                                       L009Q13)Q05Q05,040040,040040104000882TAP3
  650  5 67   3998   DCW   @}@                                                             1  3998                        89
  651  5 68   *
  652                ORG   3889                                                                    3889
 }                                     L001I98,040040,040040,040040104000892TAP3
  653         LOADXX LCA   ADDR,018                                                        7  3889  L P04 018             90
  654                B     SETEXT                                                          4  3896  B L37                 90
  655                ORG   3900                                                                    3900
  656         MOVXX  MLC   018,ADDR                                                        7  3900  M 018 P04             90
  657                B     PUTRCD&7                                                        4  3907  B 568                 90
  658                ORG   2758                                                                    2758
 LP04018BL37M018P04B568                L022I10,H96I00,I07040,040040104000902TAP3
  659         TABLYY BWZ   TABLZZ&8,007,2                                                  8  2758  V P78 007 2           91
  660                B     TLUFST&8                                                        4  2766  B L93                 91
  661         TABLZZ BWZ   TABLXX,007,2                                                    8  2770  V |38 007 2           91
  662                C     X2,009                                                          7  2778  C 094 009             91
  663                BH    TLUFST&8                                                        5  2785  B L93 U               91
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                          1401 TWO-TAPE AUTOCODER, PHASE 3 - JULY 30, 1962 RBR       2TAP3              PAGE   13

 SEQ PG LIN  LABEL  OP    OPERANDS                                          SFX CT  LOCN  INSTRUCTION TYPE  CARD
 664                B     TABLXX                                                 4  2790  B |38              91
VP780072BL93V|380072C094009BL93UB|38   L036P93,P66P70,P78P85,P90040104000912TAP3
                                       N000000,040040,040040,040040B16700922TAP3
,015022)024056,029036,040047,0540611001,001008B001     ,001008B001     00932TAP7
,068072)063067/061039                                       ,001001104000942TAP7
 665  5 69          EX    SYSTEM                                                      B 167              92
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                              1401 TWO-TAPE AUTOCODER - PHASE 7 - REITERATION  RBR       2TAP7              PAGE   14

 SEQ PG LIN  LABEL  OP    OPERANDS                                            SFX CT  LOCN  INSTRUCTION TYPE  CARD
 666  5 70          JOB   1401 TWO-TAPE AUTOCODER - PHASE 7 - REITERATION  RBR
 667  5 71   *
 668  5 72   ******    OVERLAY OF PHASE 3 FOR REITERATION  ***
 669  5 73   *
 670  5 74   *                        ***  PHASE 7 IDENTIFICATION AT 333  ***
 671  5 75   *
 672  5 76          ORG   333                                                                0333
 673  5 77          DCW   @7@                                                      1  0333                    95
 674  5 78          B     HSKPG1                                                   4  0334  B J26             95
 675  6 42   *
7BJ26                                  L005337,334040,040040,040040104000952TAP7
 676         2802   DCW   @}@                                                      1  2802                    96
}                                      L001Q02,040040,040040,040040104000962TAP7
                                       N000000,040040,040040,040040B16700972TAP7
,015022)024056,029036,040047,0540611001,001008B001     ,001008B001     00982TAP4
,068072)063067/061039                                      ,001001104000992TAP4
 677  6 43          EX    SYSTEM                                                          B 167             97
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                      1401 TWO-TAPE AUTOCODER - PHASE 4 - COMPLETE TBL RBR       2TAP4              PAGE   15

 SEQ PG LIN  LABEL  OP    OPERANDS                                           SFX CT  LOCN  INSTRUCTION TYPE  CARD
 678  6 44          JOB   1401 TWO-TAPE AUTOCODER - PHASE 4 - COMPLETE TBL RBR
 679  6 45   *
 680  6 46   ******    TEST SYMBOL TABLE FOR RELATIVE ADDRESSES  ***
 681  6 47   *
 682  6 48   *                    ***  PHASE 4 IDENTIFICATION AT 333  ***
 683  6 49   *
 684  6 50          ORG   333                                                                0333
 685  6 51          DCW   @4@                                                     1  0333                    100
 686  6 52   *
 687  6 53   TSTTBL CW    REITER                                                  4  0334  ) 193             100
 688  6 54          BW    TBLDON,RELATV                                           8  0338  V 892 196 1       100
 689  6 55          SW    RELATV,HOLDZN#1                                         7  0346  , 196 P14         100
 690  6 56          MLC   @000@,X1                                                7  0353  M P17 089         100
 691  6 57          MLC   @000@,SAVLOC                                            7  0360  M P17 006         100
4)193V8921961,196P14MP17089MP17006     L034366,334338,346353,360040104001002TAP4
 692  6 58          SW    LABTBL-5&X3,LABTBL-8&X3                                 7  0367  , Q?8 Q?5         101
 693  6 59          BW    *&12,LABTBL-5&X1                                        8  0374  V 393 Q|8 1       101
 694  6 60   P2SK1  A     @9@,X1                                                  7  0382  A P18 089         101
 695  6 61          B     *-18                                                    4  0389  B 374             101
 696  6 62          C     X1,X3                                                   7  0393  C 089 099         101
 697  6 63          BE    TBLDON                                                  5  0400  B 892 S           101
,Q?8Q?5V393Q|81AP18089B374C089099B892S L038404,374382,389393,400040104001012TAP4
 698  6 64          MLC   @000@,X2                                                7  0405  M P17 094         102
 699  6 65          LCA   LABTBL&X1,LABTBL-3&X3                                   7  0412  L Q/3 QA0         102
 700  6 66   P2SK2  C     LABTBL-3&X2,LABTBL&X1                                   7  0419  C QJ0 Q/3         102
 701  6 67          BE    *&12                                                    5  0426  B 442 S           102
 702  6 68          A     @9@,X2                                                  7  0431  A P18 094         102
 703  6 69          B     P2SK2                                                   4  0438  B 419             102
MP17094LQ/3QA0CQJ0Q/3B442SAP18094B419  L037441,412419,426431,438040104001022TAP4
 704  6 70          C     X3,X2                                                   7  0442  C 099 094         103
 705  6 71          BE    NOSYM                                                   5  0449  B 847 S           103
 706  6 72          BW    *&5,LABTBL-8&X2                                         8  0454  V 466 Q!5 1       103
 707  6 73          B     *&21                                                    4  0462  B 486             103
 708  6 74          BW    *&5,FULL                                                8  0466  V 478 194 1       103
 709  6 75          B     NOSYM                                                   4  0474  B 847             103
C099094B847SV466Q!51B486V4781941B847   L036477,449454,462466,474040104001032TAP4
 710  6 76          CW    RELATV                                                  4  0478  ) 196             104
 711  6 77          B     P2SK1                                                   4  0482  B 382             104
 712  6 78          MLC   LABTBL&X2,ADDR                                          7  0486  M QJ3 P04         104
 713  6 79          MLC   LABTBL-6&X1,HOLD                                        7  0493  M Q|7 P07         104
 714  6 80          CW    LABTBL-5&X1                                             4  0500  ) Q|8             104
 715  6 81          A     @1@,SAVLOC                                              7  0504  A P19 006         104
 716  6 82          B     MODALT                                                  4  0511  B O52             104
)196B382MQJ3P04MQ|7P07)Q|8AP19006BO52  L037514,482486,493500,504511104001042TAP4
 717  6 83   P2SK3  MLC   RESULT-1,ADDR                                           7  0515  M P10 P04         105
 718  6 84          MLC   ADDR,LABTBL&X1                                          7  0522  M P04 Q/3         105
 719  6 85          CW    LABTBL-5&X1                                             4  0529  ) Q|8             105
 720  6 86          MLC   @|@,LABTBL-8&X1                                         7  0533  M P20 Q|5         105
 721  6 87   P2SK4  A     @9@,X1                                                  7  0540  A P18 089         105
MP10P04MP04Q/3)Q|8MP20Q|5AP18089       L032546,522529,533540,040040104001052TAP4
 722  6 88          BCE   SKPEQU,LABTBL-2&X1,#                                    8  0547  B 611 Q/1 #       106
 723  6 89          BW    P2SK4,LABTBL-2&X1             BYPASS SHORT LITERALS     8  0555  V 540 Q/1 1       106
 724  6 90          BW    APPLY,LABTBL-8&X1             RELATIVE ADDRESS          8  0563  V 690 Q|5 1       106
 725  6 91          BW    *&21,LABTBL-5&X1                                        8  0571  V 599 Q|8 1       106
B611Q/1#V540Q/11V690Q|51V599Q|81       L032578,555563,571040,040040104001062TAP4
 726  6 92          BW    P2SK4,LABTBL&X1                                         8  0579  V 540 Q/3 1       107
 727  6 93          BCE   P2SK4,LABTBL-5&X1,|                                     8  0587  B 540 Q|8 |       107
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 SEQ PG LIN  LABEL  OP    OPERANDS                                SFX CT  LOCN  INSTRUCTION TYPE  CARD
 728  6 94          B     P2SK1-15                                     4  0595  B 367              107
 729  6 95          BCE   SETLOC,LABTBL-5&X1,*                         8  0599  B 630 Q|8 *        107
 730  6 96          B     P2SK1-15                                     4  0607  B 367              107
V540Q/31B540Q|8|B367B630Q|8*B367      L032610,587595,599607,040040104001072TAP4
 731  6 97   SKPEQU BW    *&8,LABTBL&1X1                               8  0611  V 626 R84 1        108
 732  6 98          A     @9@,X1                                       7  0619  A P18 089          108
 733  6 99          B     P2SK4                                        4  0626  B 540              108
 734  7 00   SETLOC MLC   LABTBL-6&X1,HOLD                             7  0630  M Q|7 P07          108
 735  7 01          B     MODALT                                       4  0637  B O52              108
 736  7 02          BCE   CENAPL,LABTBL-4&X1,X                         8  0641  B 678 Q|9 X        108
V626R841AP18089B540MQ|7P07BO52B678Q|9X L038648,619626,630637,641040104001082TAP4
 737  7 03          MLC   RESULT-1,LABTBL&X1                           7  0649  M P10 Q/3          109
 738  7 04          CW    LABTBL-5&X1                                  4  0656  ) Q|8              109
 739  7 05          MLC   RESULT-1,ADDR                                7  0660  M P10 P04          109
 740  7 06          MLC   @|@,LABTBL-8&X1                              7  0667  M P20 Q|5          109
 741  7 07          B     P2SK4                                        4  0674  B 540              109
 742  7 08   CENAPL MN    @000@,RESULT-1                               7  0678  D P17 P10          109
 743  7 09          MN                                                 1  0685  D                  109
MP10Q/3)Q|8MP10P04MP20Q|5B540DP17P10D  L037685,656660,667674,678685104001092TAP4
 744  7 10          B     SETLOC&19                                    4  0686  B 649              110
 745  7 11   APPLY  C     X1,X3                                        7  0690  C 089 099          110
 746  7 12          BE    P2SK8                                        5  0697  B 932 S            110
 747  7 13          BCE   P2SK9,LABTBL-5&X1,|                          8  0702  B 758 Q|8 |        110
 748  7 14          BCE   P2SK10,LABTBL-11&X1,#                        8  0710  B 825 Q|2 #        110
 749  7 15          MZ    LABTBL-1&X1,HOLDZN                           7  0718  Y Q/2 P14          110
B649C089099B932SB758Q|8|B825Q|2#YQ/2P14L039724,690697,702710,718040104001102TAP4
 750  7 16          MLC   LABTBL&X1,HOLD                               7  0725  M Q/3 P07          111
 751  7 17          B     MODALT                                       4  0732  B O52              111
 752  7 18          MLC   RESULT-1,LABTBL&X1                           7  0736  M P10 Q/3          111
 753  7 19          MZ    HOLDZN,LABTBL-1&X1                           7  0743  Y P14 Q/2          111
 754  7 20          CW    LABTBL-8&X1                                  4  0750  ) Q|5              111
 755  7 21          B     P2SK4                                        4  0754  B 540              111
MQ/3P07BO52MP10Q/3YP14Q/2)Q|5B540      L033757,732736,743750,754040104001112TAP4
 756  7 22   P2SK9  MLC   LABTBL-6&X1,HOLD                             7  0758  M Q|7 P07          112
 757  7 23          B     MODALT                                       4  0765  B O52              112
 758  7 24          BCE   CNLAPL,LABTBL-4&X1,X                         8  0769  B 813 Q|9 X        112
 759  7 25          MLC   RESULT-1,LABTBL-6&X1                         7  0777  M P10 Q|7          112
 760  7 26          MLC   RESULT-1,ADDR                                7  0784  M P10 P04          112
MQ|7P07BO52B813Q|9XMP10Q|7MP10P04      L033790,765769,777784,040040104001122TAP4
 761  7 27          MLC   LABTBL&X1,HOLD                               7  0791  M Q/3 P07          113
 762  7 28          B     MODALT                                       4  0798  B O52              113
 763  7 29          MLC   RESULT-1,ADDR                                7  0802  M P10 P04          113
 764  7 30          B     P2SK9-8                                      4  0809  B 750              113
 765  7 31   CNLAPL MN    @000@,RESULT-1                               7  0813  D P17 P10          113
 766  7 32          MN                                                 1  0820  D                  113
 767  7 33          B     P2SK9&19                                     4  0821  B 777              113
MQ/3P07BO52MP10P04B750DP17P10DB777     L034824,798802,809813,820821104001132TAP4
 768  7 34   P2SK10 MLC   LABTBL-6&X1,HOLD                             7  0825  M Q|7 P07          114
 769  7 35          B     MODALT                                       4  0832  B O52              114
 770  7 36          MLC   RESULT-1,LABTBL-6&X1                         7  0836  M P10 Q|7          114
 771  7 37          B     P2SK9-8                                      4  0843  B 750              114
 772  7 38   NOSYM  BW    P2SK7,FULL                                   8  0847  V 877 194 1        114
 773  7 39          MLC   @000@,ADDR                                   7  0855  M P17 P04          114
MQ|7P07BO52MP10Q|7B750V8771941MP17P04  L037861,832836,843847,855040104001142TAP4
 774  7 40          MLC   ADDR,LABTBL&X1                               7  0862  M P04 Q/3          115
 775  7 41          SW    LABTBL-7&X1                                  4  0869  , Q|6              115
 776  7 42          B     P2SK3&7                                      4  0873  B 522              115
 777  7 43   P2SK7  CW    RELATV                                       4  0877  ) 196              115
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 SEQ PG LIN  LABEL  OP    OPERANDS                                            SFX CT  LOCN  INSTRUCTION TYPE  CARD
 778  7 44          A     @9@,X1                                                   7  0881  A P18 089           115
 779  7 45          B     P2SK1-15                                                 4  0888  B 367               115
 780  7 46   TBLDON BW    *&13,RELATV                                              8  0892  V 912 196 1         115
MP04Q/3,Q|6B522)196AP18089B367V9121961 L038899,869873,877881,888892104001152TAP4
 781  7 47          C     SAVLOC,@000@                                             7  0900  C 006 P17           116
 782  7 48          BU    TSTTBL                                                   5  0907  B 334 /             116
 783  7 49          BW    *&5,FULL                                                 8  0912  V 924 194 1         116
 784  7 50          B     TSTLIT                                                   4  0920  B 970               116
 785  7 51          SW    REITER                                                   4  0924  , 193               116
 786  7 52          B     TSTLIT                                                   4  0928  B 970               116
C006P17B334/V9241941B970,193B970       L032931,907912,920924,928040104001162TAP4
 787  7 53   P2SK8  BW    *&5,OVFLIT-8                                             8  0932  V 944 006 1         117
 788  7 54          B     TBLDON                                                   4  0940  B 892               117
 789  7 55          MLC   OVFLIT-6,HOLD                                            7  0944  M 008 P07           117
 790  7 56          B     MODALT                                                   4  0951  B O52               117
 791  7 57          MLC   RESULT-1,OVFLIT-6                                        7  0955  M P10 008           117
 792  7 58          CW    OVFLIT-8                                                 4  0962  ) 006               117
 793  7 59          B     TBLDON                                                   4  0966  B 892               117
 794  7 60   *                        TEST TABLE FOR UNDEFINED LITORG ENTRIES
V9440061B892M008P07BO52MP10008)006B892 L038969,940944,951955,962966104001172TAP4
 795  7 61   TSTLIT MLC   @000@,X1                                                 7  0970  M P17 089           118
 796  7 62          SW    LABTBL&X3                                                4  0977  , QA3               118
 797  7 63   CMPLTG BW    *&12,LABTBL&X1                                           8  0981  V |00 Q/3 1         118
 798  7 64          A     @9@,X1                                                   7  0989  A P18 089           118
 799  7 65          B     CMPLTG                                                   4  0996  B 981               118
 800  7 66          C     X1,X3                                                    7  1000  C 089 099           118
MP17089,QA3V|00Q/31AP18089B981C089099  L037|06,977981,989996,|00040104001182TAP4
 801  7 67          BE    TSTEQU                                                   5  1007  B /18 S             119
 802  7 68          BCE   CMPLTG&8,LABTBL-5&X1,*                                   8  1012  B 989 Q|8 *         119
 803  7 69          CW    LABTBL&X1                                                4  1020  ) Q/3               119
 804  7 70          SW    LABTBL-5&X1                                              4  1024  , Q|8               119
 805  7 71          LCA   LABTBL&X1,LABTBL-3&X3                                    7  1028  L Q/3 QA0           119
 806  7 72          CW    LABTBL-5&X1                                              4  1035  ) Q|8               119
 807  7 73          SW    LABTBL&X1                                                4  1039  , Q/3               119
B/18SB989Q|8*)Q/3,Q|8LQ/3QA0)Q|8,Q/3   L036|42,|12|20,|24|28,|35|39104001192TAP4
 808  7 74          B     TLULAB                                                   4  1043  B L59               120
 809  7 75          B     LITHIT                                                   4  1047  B |81               120
 810  7 76   NLTHIT BW    *&5,RELATV                                               8  1051  V |63 196 1         120
 811  7 77          B     CMPLTG&8                                                 4  1059  B 989               120
 812  7 78          MLC   @|@,LABTBL-5&X1                                          7  1063  M P20 Q|8           120
 813  7 79          MLC   @000@,LABTBL-6&X1                                        7  1070  M P17 Q|7           120
 814  7 80          B     CMPLTG&8                                                 4  1077  B 989               120
BL59B|81V|631961B989MP20Q|8MP17Q|7B989 L038|80,|47|51,|59|63,|70|77104001202TAP4
 815  7 81   LITHIT BW    NLTHIT,LABTBL-8&X2                                       8  1081  V |51 Q!5 1         121
 816  7 82          SW    LABTBL-8&X1                                              4  1089  , Q|5               121
 817  7 83          MLC   LABTBL&X2,LABTBL-6&X1                                    7  1093  M QJ3 Q|7           121
 818  7 84          CW    LABTBL-8&X1,LABTBL&X1                                    7  1100  ) Q|5 Q/3           121
 819  7 85          MLC   @|@,LABTBL-5&X1                                          7  1107  M P20 Q|8           121
 820  7 86          B     CMPLTG&8                                                 4  1114  B 989               121
 821  7 87   *                        TEST TABLE FOR UNDEFINED EQUATE ENTRIES
V|51Q!51,Q|5MQJ3Q|7)Q|5Q/3MP20Q|8B989  L037/17,|89|93,/00/07,/14040104001212TAP4
 822  7 88   TSTEQU MLC   @000@,X1                                                 7  1118  M P17 089           122
 823  7 89          MLC   @#@,LABTBL-2&X3                                          7  1125  M P21 QA1           122
 824  7 90   CMPEQU BCE   *&12,LABTBL-2&X1,#                                       8  1132  B /51 Q/1 #         122
 825  7 91          A     @9@,X1                                                   7  1140  A P18 089           122
 826  7 92          B     CMPEQU                                                   4  1147  B /32               122
MP17089MP21QA1B/51Q/1#AP18089B/32      L033/50,/25/32,/40/47,040040104001222TAP4
 827  7 93          C     X1,X3                                                    7  1151  C 089 099           123
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                    1401 TWO-TAPE AUTOCODER - PHASE 4 - COMPLETE TBL RBR       2TAP4              PAGE   18

 SEQ PG LIN  LABEL  OP    OPERANDS                                           SFX CT  LOCN  INSTRUCTION TYPE  CARD
 828  7 94          BE    SHRTLT                                                  5  1158  B T54 S             123
 829  7 95          BCE   *&5,LABTBL&4&X1,                                        8  1163  B /75 Q/7           123
 830  7 96          B     TLUEQU                                                  4  1171  B S28               123
 831  7 97          BW    CMPEQU&8,LABTBL&1&X1                                    8  1175  V /40 Q/4 1         123
 832  7 98          SW    LABTBL-2&X1                                             4  1183  , Q/1               123
C089099BT54SB/75Q/7 BS28V/40Q/41,Q/1   L036/86,/58/63,/71/75,/83040104001232TAP4
 833  7 99          BW    *&5,LABTBL-1&X1                                         8  1187  V /99 Q/2 1         124
 834  8 00          B     *&8                                                     4  1195  B S06               124
 835  8 01          MZ    LABTBL-1&X1,LABTBL&2&X1                                 7  1199  Y Q/2 Q/5           124
 836  8 02          MLC   LABTBL&3&X1,LABTBL&X1                                   7  1206  M Q/6 Q/3           124
 837  8 03          CW    LABTBL-2&X1                                             4  1213  ) Q/1               124
 838  8 04          MLC   @|@,LABTBL&2&X1                                         7  1217  M P20 Q/5           124
V/99Q/21BS06YQ/2Q/5MQ/6Q/3)Q/1MP20Q/5  L037S23,/95/99,S06S13,S17040104001242TAP4
 839  8 05          B     CMPEQU&8                                                4  1224  B /40               125
 840  8 06   TLUEQU SW    LABTBL&4&X1                                             4  1228  , Q/7               125
 841  8 07          MLC   LABTBL&9&X1,LABTBL-3&X3                                 7  1232  M QS2 QA0           125
 842  8 08          CW    LABTBL&4&X1                                             4  1239  ) Q/7               125
 843  8 09          B     TLULAB                                                  4  1243  B L59               125
 844  8 10          B     PRVEQU                                                  4  1247  B S74               125
 845  8 11          BW    *&5,RELATV                                              8  1251  V S63 196 1         125
B/40,Q/7MQS2QA0)Q/7BL59BS74VS631961    L035S58,S28S32,S39S43,S47S51104001252TAP4
 846  8 12          B     CMPEQU&8                                                4  1259  B /40               126
 847  8 13          MLC   @###@,LABTBL&X1                                         7  1263  M P24 Q/3           126
 848  8 14          B     CMPEQU&8                                                4  1270  B /40               126
 849  8 15   PRVEQU BW    *&8,LABTBL-1&X1                                         8  1274  V S89 Q/2 1         126
 850  8 16          MZ    LABTBL-1&X2,LABTBL-1&X1                                 7  1282  Y QJ2 Q/2           126
 851  8 17          CW    LABTBL-1&X1                                             4  1289  ) Q/2               126
B/40MP24Q/3B/40VS89Q/21YQJ2Q/2)Q/2     L034S92,S63S70,S74S82,S89040104001262TAP4
 852  8 18          MZ    LABTBL-1&X1,HOLDZN                                      7  1293  Y Q/2 P14           127
 853  8 19          MLC   LABTBL&X2,ADDR                                          7  1300  M QJ3 P04           127
 854  8 20          MLC   LABTBL&3&X1,HOLD                                        7  1307  M Q/6 P07           127
 855  8 21          B     MODALT                                                  4  1314  B O52               127
 856  8 22          MLC   RESULT-1,LABTBL&X1                                      7  1318  M P10 Q/3           127
 857  8 23          MZ    HOLDZN,LABTBL-1&X1                                      7  1325  Y P14 Q/2           127
YQ/2P14MQJ3P04MQ/6P07BO52MP10Q/3YP14Q/2L039T31,T00T07,T14T18,T25040104001272TAP4
 858  8 24          CW    LABTBL&4&X1                                             4  1332  ) Q/7               128
 859  8 25          CW    LABTBL-8&X1,LABTBL-2&X1                                 7  1336  ) Q|5 Q/1           128
 860  8 26          MLC   @|@,LABTBL&2&X1                                         7  1343  M P20 Q/5           128
 861  8 27          B     CMPEQU&8                                                4  1350  B /40               128
 862  8 28   *                        COMPLETE SHORT LITERAL ADDRESSES
 863  8 29   SHRTLT MLC   @000@,X1                                                7  1354  M P17 089           128
 864  8 30          MLC   @000@,X2                                                7  1361  M P17 094           128
)Q/7)Q|5Q/1MP20Q/5B/40MP17089MP17094   L036T67,T36T43,T50T54,T61040104001282TAP4
 865  8 31   TSTLTG BCE   HAVLTG,LABTBL-5&X2,|                                    8  1368  B T99 Q!8 |         129
 866  8 32          A     @9@,X2                                                  7  1376  A P18 094           129
 867  8 33          C     X3,X2                                                   7  1383  C 099 094           129
 868  8 34          BE    ENDPH2                                                  5  1390  B U93 S             129
 869  8 35          B     TSTLTG                                                  4  1395  B T68               129
 870  8 36   HAVLTG MLC   LABTBL-6&X2,ADDR                                        7  1399  M Q!7 P04           129
BT99Q!8|AP18094C099094BU93SBT68MQ!7P04 L038U05,T76T83,T90T95,T99040104001292TAP4
 871  8 37          ZS    @1@,HOLD                                                7  1406  ! P19 P07           130
 872  8 38          B     MODALT                                                  4  1413  B O52               130
 873  8 39          MLC   RESULT-1,ADDR                                           7  1417  M P10 P04           130
 874  8 40   TSTSRT BW    HAVSRT,LABTBL-2&X1                                      8  1424  V U55 Q/1 1         130
 875  8 41          A     @9@,X1                                                  7  1432  A P18 089           130
!P19P07BO52MP10P04VU55Q/11AP18089      L033U38,U13U17,U24U32,040040104001302TAP4
 876  8 42          C     X1,X3                                                   7  1439  C 089 099           131
 877  8 43          BE    ENDPH2                                                  5  1446  B U93 S             131
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                              1401 TWO-TAPE AUTOCODER - PHASE 4 - COMPLETE TBL RBR       2TAP4              PAGE   19

 SEQ PG LIN  LABEL  OP    OPERANDS                                           SFX CT  LOCN  INSTRUCTION TYPE  CARD
 878  8 44          B     TSTSRT                                                  4  1451  B U24              131
 879  8 45   HAVSRT C     X2,X1                                                   7  1455  C 094 089          131
 880  8 46          BH    PATCHX                                                  5  1462  B P36 U            131
 881  8 47          MLC   LABTBL&X1,HOLD                                          7  1467  M Q/3 P07          131
 882  8 48          B     MODALT                                                  4  1474  B O52              131
C089099BU93SBU24C094089BP36UMQ/3P07BO52L039U77,U46U51,U55U62,U67U74104001312TAP4
 883  8 49          MLC   RESULT-1,LABTBL&X1                                      7  1478  M P10 Q/3          132
 884  8 50          CW    LABTBL-8&X1                                             4  1485  ) Q|5              132
 885  8 51          B     TSTSRT&8                                                4  1489  B U32              132
 886  8 52   ENDPH2 LCA   @         @,LABTBL&X3                                   7  1493  L P33 QA3          132
 887  8 53          CW    LABTBL-8&X3                                             4  1500  ) Q?5              132
 888  8 54          MLC   @5@,SEEK                                                7  1504  M P34 125          132
 889  8 55          CW    HIGH2&1                                                 4  1511  ) P57              132
MP10Q/3)Q|5BU32LP33QA3)Q?5MP34125)P57  L037V14,U85U89,U93V00,V04V11104001322TAP4
 890  8 56          NOP   999,999                                                 7  1515  N 999 999          133
 891  8 57          B     LOAD                                                    4  1522  B 100              133
 892  8 58          H                                                             1  1526  .                  133
 893  8 59          LTORG NEG&1                                                           2714
N999999B100.                           L012V26,V22V26,040040,040040104001332TAP4
        689  HOLDZN DCW   #01                                                     1  2714              AREA   134
                          @000@                                                   3  2717              LIT    134
                          @9@                                                     1  2718              LIT    134
                          @1@                                                     1  2719              LIT    134
                          @|@                                                     1  2720              LIT    134
                          @#@                                                     1  2721              LIT    134
                          @###@                                                   3  2724              LIT    134
 00091|####                            L011P24,P15P18,P19P20,P21P22104001342TAP4
        886               @         @                                             9  2733              LIT    135
                          @5@                                                     1  2734              LIT    135
 894  8 591         H                                                             1  2735  .                  135
 895  8 60   PATCHX BWZ   TSTLTG&8,092,2                                          8  2736  V T76 092 2        135
 896  8 61          BWZ   HAVSRT&12,087,2                                         8  2744  V U67 087 2        135
 897  8 611         B     TSTLTG&8                                                4  2752  B T76              135
 898  8 612  HIGH2  H                                                             1  2756  .                  135
         5.VT760922VU670872BT76.       L032P56,P34P35,P36P44,P52P56104001352TAP4
 899  8 613         DCW   @}@                                                     1  2757                     136
}                                      L001P57,040040,040040,040040104001362TAP4
                                       N000000,040040,040040,040040B16701372TAP4
,015022)024056,029036,040047,0540611001,001008B001     ,001008B001     01382TAP5
,068072)063067/061039                                       ,001001104001392TAP5
 900  8 62          EX    SYSTEM                                                           B 167              137
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                         1401 TWO-TAPE AUTOCODER - PHASE 5 - TLU LABELS   RBR       2TAP5               PAGE   20

 SEQ PG LIN  LABEL  OP    OPERANDS                                         SFX CT  LOCN  INSTRUCTION TYPE  CARD
 901  8 63          JOB   1401 TWO-TAPE AUTOCODER - PHASE 5 - TLU LABELS   RBR
 902  8 64   *
 903  8 65   ******    PHASE 5 - TLU LABELS AND PROCESS LITERAL RECORDS  ***
 904  8 66   *
 905  8 67   *                    ***  PHASE 5 IDENTIFICATION AT 333  ***
 906  8 68   *
 907  8 69          ORG   333                                                           0333
 908  8 70          DCW   @5@                                               1  0333                    140
 909  8 71   *
 910  8 72          B     PHASE5             BRANCH TO HOUSEKEEPING          4  0334  B !99              140
 911  8 73   *
 912  8 74          ORG   RECORD&1                                                      2099
5B!99                                L005337,334040,040040,040040104001402TAP5
 913  8 75   PHASE5 CW    SAVLIT#1,ADONE#1   HOUSEKEEPING                   7  2099  ) P15 P16          141
 914  8 76          SW    3998                                              4  2106  , I98              141
 915  8 77          LCA   3998,PARTBL&90                                    7  2110  L I98 K69          141
 916  8 78          CW    FSTIME#1,DOUBLE#1                                 7  2117  ) P17 P18          141
 917  8 79          CW    LITONE#1,LITX#1                                   7  2124  ) P19 P20          141
 918  8 80          CW    LITORG                                            4  2131  ) P12              141
)P15P16,I98LI98K69)P17P18)P19P20)P12   L036J34,J06J10,J17J24,J31040104001412TAP5
 919  8 81          NOP   LITBEG#5,ORGBAS#3                                 7  2135  N P25 P28          142
 920  8 82          NOP   TEMP1#3                                           4  2142  N P31              142
 921  8 83          MLC   @   @,ADDR                                        7  2146  M P34 P04          142
 922  8 84          MLC   @000@,LSTORG#3                                    7  2153  M P37 P40          142
 923  8 85          MLC   @000@,LASTLT                                      7  2160  M P37 009          142
 924  8 86          MLC   X3,BASIC#3                                        7  2167  M 099 P43          142
NP25P28NP31MP34P04MP37P40MP37009M099P43L039J73,J42J46,J53J60,J67040104001422TAP5
 925  8 87          MLC   @000@,X3                                          7  2174  M P37 099          143
 926  8 88          B     TLULIT                                            4  2181  B 338              143
 927  8 89          H                                                       1  2185  .                  143
 928  8 90          ORG   338                                                           0338
 929  8 91   *                    FIND FIRST LTORG ENTRY IN LABEL TABLE
MP37099B338.                         L012J85,J81J85,040040,040040104001432TAP5
 930  8 92   TLULIT C     X3,BASIC                                          7  0338  C 099 P43          144
 931  8 93          BE    HITLIT-8           HAVE OVERFLOW LTORG             5  0345  B 369 S            144
 932  8 94          A     @9@,X3             STEP X3 TO FIND NEXT LTORG IN TBL  7  0350  A P44 099       144
 933  8 95          BCE   HITLIT,LABTBL-5&X3,|       TEST FOR LTORG ENTRY    8  0357  B 377 Q?8 |        144
 934  8 97          B     TLULIT                                            4  0365  B 338              144
 935  8 98          SW    LITADD             SET UP FOR INCOMPLETE LTORG   )))  4  0369  , P50          144
 936  8 99          B     LITPNT&7                                          4  0373  B 402              144
C099P43B369SAP44099B377Q?8|B338,P50B402L039376,345350,357365,369373104001442TAP5
 937  9 01   HITLIT MLC   LABTBL-6&X3,ADDR                                  7  0377  M Q?7 P04          145
 938  9 02          MLC   @00J@,HOLD                                        7  0384  M P47 P07          145
 939  9 03          B     MODALT                                            4  0391  B O52              145
 940  9 04   *                    SET LTORG POINT ADDRESS IN LITADD
 941  9 05   LITPNT LCA   RESULT-1,LITADD#3    SET UP START ADDR OF LITERALS  7  0395  L P10 P50         145
 942  9 06          MLC   X3,LITLOC#3                                       7  0402  M 099 P53          145
 943  9 07          MLC   BASIC,X3                                          7  0409  M P43 099          145
 944  9 08   *                    GET INPUT RECORD FOR PROCESSING
MQ?7P04MP47P07BO52LP10P50M099P53MP43099L039415,384391,395402,409040104001452TAP5
 945  9 09   GET    RTW   1,RECORD                                          8  0416  L %U1 !98 R        146
 946  9 10          BER   TPERR                                             5  0424  B 201 L            146
 947  9 11          BEF   ENDPH3                                            5  0429  B Y33 K            146
 948  9 12          BCE   PUT,RECORD&5,*                                    8  0434  B Y11 J03 *        146
 949  9 13          CW    ADONE                                             4  0442  ) P16              146
 950  9 14          C     OPER,@LTOR@                                       7  0446  C J16 P57          146
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                              1401 TWO-TAPE AUTOCODER - PHASE 5 - TLU LABELS   RBR       2TAP5               PAGE   21

 SEQ PG LIN  LABEL  OP    OPERANDS                                         SFX CT  LOCN  INSTRUCTION TYPE  CARD
L%U1!98RB201LBY33KBY11J03*)P16CJ16P57  L037452,424429,434442,446040104001462TAP5
 951  9 15          BE    LIT                                                   5  0453  B V60 S            147
 952  9 16          C     OPER,@EX  @                                           7  0458  C J16 P61          147
 953  9 17          BE    LTDONE                                                5  0465  B V64 S            147
 954  9 18          BW    HAVLIT,LITX                                           8  0470  V 756 P20 1        147
 955  9 19          BW    LITRCD,RECORD&3                                       8  0478  V 783 J01 1        147
BV60SCJ16P61BV64SV756P201V783J011      L033485,458465,470478,040040104001472TAP5
 956  9 20   LTREST MLC   LITBEG-2,LASTLT                                       7  0486  M P23 009          148
 957  9 21          CW    LITORG                                                4  0493  ) P12              148
 958  9 22          BW    CONTRL,RECORD                                         8  0497  V V09 !98 1        148
 959  9 24   TEST   BCE   DECL,ICOUNT,                                          8  0505  B X79 J85          148
 960  9 25   *                        PROCESS IMPERATIVE INSTRUCTION
 961  9 26          MLC   @000@,HOLD                                            7  0513  M P37 P07          148
MP23009)P12VV09!981BX79J85 MP37P07     L034519,493497,505513,040040104001482TAP5
 962  9 27          MLC   PARAMT&29,HOLD                                        7  0520  M K22 P07          149
 963  9 28          MLC   @000@,X1                                              7  0527  M P37 089          149
 964  9 29          MLC   AADDR,DADDR#1                                         7  0534  M J79 P62          149
 965  9 30          BCE   DONE,AADDR,                                           8  0541  B U38 J79          149
 966  9 31          BCE   OUTADD&15,AADDR,D                                     8  0549  B 648 J79 D        149
MK22P07MP37089MJ79P62BU38J79 B648J79D  L037556,527534,541549,040040104001492TAP5
 967  9 32          BCE   SYMBOL,AADDR,S                                        8  0557  B |88 J79 S        150
 968  9 33          BCE   ACTUAL,AADDR,A                                        8  0565  B S49 J79 A        150
 969  9 34          BCE   MACHIN,AADDR,M                                        8  0573  B S67 J79 M        150
 970  9 35          BCE   CNVRTD,AADDR,Q                                        8  0581  B U58 J79 Q        150
B|88J79SBS49J79ABS67J79MBU58J79Q       L032588,565573,581040,040040104001502TAP5
 971  9 36          BW    OUTADD,LITADD                                         8  0589  V 633 P50 1        151
 972  9 37   *                        SET UP ADDRESS FOR LITERAL
 973  9 38   LITRAL MLC   LITADD,ADDR                                           7  0597  M P50 P04          151
 974  9 39          B     MODALT                                                4  0604  B O52              151
 975  9 40          MLC   RESULT-1,ADDR                                         7  0608  M P10 P04          151
 976  9 41          MLC   ADDR,LITADD                                           7  0615  M P04 P50          151
V633P501MP50P04BO52MP10P04MP04P50      L033621,597604,608615,040040104001512TAP5
 977  9 42          MLC   @D@,DADDR                                             7  0622  M P63 P62          152
 978  9 43          SW    SAVLIT                                                4  0629  , P15              152
 979  9 44   OUTADD BW    DOBADD,ADONE                                          8  0633  V U12 P16 1        152
 980  9 45          MLC   ADDR,AOPND                                            7  0641  M P04 K65          152
 981  9 46          B     SETXX                                                 4  0648  B Z08              152
 982  9 47          MLC   PARAMT&59,HOLD                                        7  0652  M K52 P07          152
MP63P62,P15VU12P161MP04K65BZ08MK52P07  L037658,629633,641648,652040104001522TAP5
 983  9 48          MLC   @030@,X1                                              7  0659  M P66 089          153
 984  9 49          MLC   DADDR,AADDR                                           7  0666  M P62 J79          153
 985  9 50          MLC   BADDR,DADDR                                           7  0673  M J80 P62          153
 986  9 51          BW    ALIT,SAVLIT                                           8  0680  V 748 P15 1        153
 987  9 52   TSTADD BCE   DONE,BADDR,                                           8  0688  B U38 J80          153
MP66089MP62J79MJ80P62V748P151BU38J80   L037695,666673,680688,040040104001532TAP5
 988  9 53          BCE   DONE,BADDR,D                                          8  0696  B U38 J80 D        154
 989  9 54          BCE   SYMBOL,BADDR,S                                        8  0704  B |88 J80 S        154
 990  9 55          BCE   ACTUAL,BADDR,A                                        8  0712  B S49 J80 A        154
 991  9 56          BCE   MACHIN,BADDR,M                                        8  0720  B S67 J80 M        154
BU38J80DB|88J80SBS49J80ABS67J80M       L032727,704712,720040,040040104001542TAP5
 992  9 57          BCE   CNVRTD,BADDR,Q                                        8  0728  B U58 J80 Q        155
 993  9 58          BCE   DONE,ICOUNT,                                          8  0736  B U38 J85          155
 994  9 59          B     LITRAL-8                                              4  0744  B 589              155
 995  9 60   ALIT   CW    SAVLIT                                                4  0748  ) P15              155
 996  9 61          B     TSTADD                                                4  0752  B 688              155
 997  9 62   *                        PROCESS LITERAL RECORD
 998  9 63   HAVLIT CW    LITX                                                  4  0756  ) P20              155
BU58J80QBU38J85 B589)P15B688)P20       L032759,736744,748752,756040104001552TAP5
 999  9 64          BW    *&5,RECORD&3                                          8  0760  V 772 J01 1        156
1000  9 65          B     LTREST                                                4  0768  B 486              156
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                              1401 TWO-TAPE AUTOCODER - PHASE 5 - TLU LABELS   RBR       2TAP5              PAGE   22

 SEQ PG LIN  LABEL  OP    OPERANDS                                         SFX CT  LOCN  INSTRUCTION TYPE  CARD
1001  9 66          MLC   TEMP1,X1                                              7  0772  M P31 089           156
1002  9 67          B     LITRCD&15                                             4  0779  B 798               156
1003  9 68   LITRCD BW    PROCSW,LITORG                                         8  0783  V 877 P12 1         156
1004  9 69          MLC   LITLOC,X1                                             7  0791  M P53 089           156
V772J011B486MP31089B798V877P121MP53089 L038797,768772,779783,791040104001562TAP5
1005  9 70          SW    LITORG                                                4  0798  , P12               157
1006  9 71          C     X1,X3                                                 7  0802  C 089 099           157
1007  9 72          BE    NOPROC                                                5  0809  B 834 S             157
1008  9 73          BW    NOPROC,LABTBL&X1                                      8  0814  V 834 Q/3 1         157
1009  9 74          BW    NOPROC,LABTBL-8&X1                                    8  0822  V 834 Q|5 1         157
1010  9 75          B     *&12                                                  4  0830  B 845               157
,P12C089099B834SV834Q/31V834Q|51B845   L036833,802809,814822,830040104001572TAP5
1011  9 76   NOPROC MLC   @B@,PROCSW                                            7  0834  M P67 877           158
1012  9 77          B     PROCSW                                                4  0841  B 877               158
1013  9 78          MLC   @N@,PROCSW                                            7  0845  M P68 877           158
1014  9 79          MLC   LABTBL-6&X1,ADDR                                      7  0852  M Q|7 P04           158
1015  9 80          ZS    @1@,HOLD                                              7  0859  ! P69 P07           158
1016  9 81          B     MODALT                                                4  0866  B O52               158
MP67877B877MP68877MQ|7P04!P69P07BO52   L036869,841845,852859,866040104001582TAP5
1017  9 82          MLC   RESULT-1,BASE#3                                       7  0870  M P10 P72           159
1018  9 83   PROCSW NOP   TSTADC                                                4  0877  N 949               159
1019  9 84          BW    TSTADC,RECORD&4                                       8  0881  V 949 J02 1         159
1020  9 85          BCE   ALPHA,RECORD&20,@                                     8  0889  B |72 J18 @         159
1021  9 86          BCE   NUMLIT&8,PARAMT&60,A                                  8  0897  B 913 K53 A         159
MP10P72N949V949J021B|72J18@B913K53A    L035904,877881,889897,040040104001592TAP5
1022  9 87   NUMLIT BCE   SHORTL,PARAMT&6,                                      8  0905  B |09 J99           160
1023  9 88          MLC   BASE,ADDR                                    )))      7  0913  M P72 P04           160
1024  9 89          MLC   LITCNT,HOLD                                           7  0920  M J88 P07           160
1025  9 90          B     MODALT                                                4  0927  B O52               160
1026  9 91          LCA   RESULT-1,LOCATN                                       7  0931  L P10 J92           160
B|09J99 MP72P04MJ88P07BO52LP10J92      L033937,913920,927931,040040104001602TAP5
1027  9 92          MLC   LOCATN,BASE                                           7  0938  M J92 P72           161
1028  9 93          SW    RECORD&4            MARK LITERAL RECORD AS PROCESSED  4  0945  , J02               161
1029  9 94   TSTADC BCE   TLUADC,PARAMT&61,D                                    8  0949  B 961 K54 D         161
1030  9 95          B     PUT                                                   4  0957  B Y11               161
1031  9 96   TLUADC BCE   PUT,AADDR,D                                           8  0961  B Y11 J79 D         161
1032  9 97          MLC   AADDR,DADDR                                           7  0969  M J79 P62           161
MJ92P72,J02B961K54DBY11BY11J79DMJ79P62 L038975,945949,957961,969040104001612TAP5
1033  9 98          MLC   @000@,X1                                              7  0976  M P37 089           162
1034  9 99          SW    PARAMT&1                                              4  0983  , J94               162
1035 10 00          LCA   PARAMT&6,LABTBL-3&X3                                  7  0987  L J99 QA0           162
1036 10 01          B     SYMBOL&15                                             4  0994  B /03               162
1037 10 02   LADBCK MLC   AOPND,PARAMT&32                                       7  0998  M K65 K25           162
1038 10 03          B     PUT                                                   4  1005  B Y11               162
1039 10 04   SHORTL SW    PARAMT                                                4  1009  , J93               162
MP37089,J94LJ99QA0B/03MK65K25BY11,J93  L037|12,983987,994998,|05|09104001622TAP5
1040 10 05          LCA   PARAMT&5,LABTBL-3&X3                                  7  1013  L J98 QA0           163
1041 10 06          B     TLULAB                                                4  1020  B L59               163
1042 10 07          B     *&5                                                   4  1024  B |32               163
1043 10 08          B     PUT                                                   4  1028  B Y11               163
1044 10 09          SW    LABTBL-8&X3                                           4  1032  , Q?5               163
1045 10 10          C     X2,LASTLT                                             7  1036  C 094 009           163
1046 10 11          B     ADJXX                                                 4  1043  B Z24               163
LJ98QA0BL59B|32BY11,Q?5C094009BZ24     L034|46,|20|24,|28|32,|36|43104001632TAP5
1047 10 111         NOP                                                         1  1047  N                   164
1048 10 12          CW    LABTBL-8&X3                                           4  1048  ) Q?5               164
1049 10 13          BW    ALPHA-8,LABTBL-2&X2                                   8  1052  V |64 QJ1 1         164
1050 10 14          B     GET                                                   4  1060  B 416               164
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                           1401 TWO-TAPE AUTOCODER - PHASE 5 - TLU LABELS   RBR       2TAP5               PAGE   23

 SEQ PG LIN  LABEL  OP    OPERANDS                                     SFX CT  LOCN  INSTRUCTION TYPE  CARD
1051 10 15          CW    LABTBL-2&X2                                       4  1064  ) QJ1               164
1052 10 16          B     NUMLIT&8                                          4  1068  B 913               164
1053 10 17   ALPHA  C     LITCNT,@005@                                      7  1072  C J88 P75           164
N)Q?5V|64QJ11B416)QJ1B913CJ88P75       L032|78,|48|52,|60|64,|68|72104001642TAP5
1054 10 18          BH    SHORTL                                            5  1079  B |09 U             165
1055 10 19          B     NUMLIT&8                                          4  1084  B 913               165
1056 10 20   *                        PROCESS SYMBOLIC LABEL - TLU IN LABEL TABL
1057 10 21   SYMBOL BCE   ASTRSK,PARAMT&X1,*                                8  1088  B /91 JZ3 *         165
1058 10 22          LCA   PARAMT&5&X1,LABTBL-3&X3                           7  1096  L JZ8 QA0           165
1059 10 23          B     TLULAB                                            4  1103  B L59               165
1060 10 24          B     HITSYM                                            4  1107  B /23               165
B|09UB913B/91JZ3*LJZ8QA0BL59B/23       L032/10,|84|88,|96/03,/07040104001652TAP5
1061 10 25          BW    OUTADD,  FULL                                     8  1111  V 633 194 1         166
1062 10 26          B     TSTFUL                                            4  1119  B /61               166
1063 10 27   HITSYM BW    TSTFUL,LABTBL-8&X2                                8  1123  V /61 Q!5 1         166
1064 10 28          CW    LABTBL-2&X2                                       4  1131  ) QJ1               166
1065 10 29          MLC   LABTBL&X2,ADDR                                    7  1135  M QJ3 P04           166
1066 10 30          BCE   TSTFUL,LABTBL-2&X2,#                              8  1142  B /61 QJ1 #         166
V6331941B/61V/61Q!51)QJ1MQJ3P04B/61QJ1#L039/49,/19/23,/31/35,/42040104001662TAP5
1067 10 31          MLC   @D@,DADDR                                         7  1150  M P63 P62           167
1068 10 32          B     CMPADD                                            4  1157  B S85               167
1069 10 33   TSTFUL BW    OUTADD,FULL                                       8  1161  V 633 194 1         167
1070 10 34          MLC   @###@,ADDR                                        7  1169  M P78 P04           167
1071 10 35          SW    ERRPOS-2                                          4  1176  , J82               167
1072 10 36          MLC   @D@,DADDR                                         7  1180  M P63 P62           167
MP63P62BS85V6331941MP78P04,J82MP63P62  L037/86,/57/61,/69/76,/80040104001672TAP5
1073 10 37          B     OUTADD                                            4  1187  B 633               168
1074 10 38   ASTRSK BCE   OUTADD,LOCATN,                                    8  1191  B 633 J92           168
1075 10 39          MLC   LOCATN,ADDR                                       7  1199  M J92 P04           168
1076 10 40          ZA    ICOUNT,HOLD                                       7  1206  ? J85 P07           168
1077 10 41          S     @1@,HOLD                                          7  1213  S P69 P07           168
B633B633J92 MJ92P04?J85P07SP69P07      L033S19,/91/99,S06S13,040040104001682TAP5
1078 10 42          MZ    @ @,HOLD                                          7  1220  Y P79 P07           169
1079 10 43          B     MODALT                                            4  1227  B O52               169
1080 10 44          MLC   RESULT-1,ADDR                                     7  1231  M P10 P04           169
1081 10 45          MLC   @D@,DADDR                                         7  1238  M P63 P62           169
1082 10 46          B     CMPADD                                            4  1245  B S85               169
1083 10 47   *                        PROCESS ACTUAL ADDRESS OPERAND
1084 10 48   ACTUAL MLC   PARAMT&8&X1,ADDR                                  7  1249  M K|1 P04           169
YP79P07BO52MP10P04MP63P62BS85MK|1P04   L036S55,S27S31,S38S45,S49040104001692TAP5
1085 10 49          MLC   @D@,DADDR                                         7  1256  M P63 P62           170
1086 10 50          B     CMPADD                                            4  1263  B S85               170
1087 10 51   *                        PROCESS MACHINE ADDRESS OPERAND
1088 10 52   MACHIN MLC   PARAMT&2,ADDR                                     7  1267  M J95 P04           170
1089 10 53          MLC   @D@,DADDR                                         7  1274  M P63 P62           170
1090 10 54          B     OUTADD                                            4  1281  B 633               170
1091 10 55   *                        APPLY CHARACTER ADJUSTMENT & INDEXING
1092 10 56   CMPADD BCE   OUTADD,PARAMT&10&X1,                              8  1285  B 633 K|3           170
MP63P62BS85MJ95P04MP63P62B633B633K|3   L037S92,S63S67,S74S81,S85040104001702TAP5
1093 10 57          BCE   INDADD,PARAMT&11&X1,X                             8  1293  B T87 K|4 X         171
1094 10 58   ADJADD MLC   @000@,X2                                          7  1301  M P37 094           171
1095 10 59          SW    PARAMT&11&X1                                      4  1308  , K|4               171
1096 10 60          MLC   PARAMT&19&X1,X2                                   7  1312  M K/2 094           171
1097 10 61          A     X1,X2                                             7  1319  A 089 094           171
BT87K|4XMP37094,K|4MK/2094A089094      L033T25,T01T08,T12T19,040040104001712TAP5
1098 10 62          MLC   @000@,HOLD                                        7  1326  M P37 P07           172
1099 10 63          MLC   PARAMT&10&X2,HOLD                                 7  1333  M K!3 P07           172
1100 10 64          MZ    PARAMT&10&X1,HOLD                                 7  1340  Y K|3 P07           172
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                            1401 TWO-TAPE AUTOCODER - PHASE 5 - TLU LABELS   RBR       2TAP5              PAGE   24

 SEQ PG LIN  LABEL  OP     OPERANDS                                             SFX CT  LOCN  INSTRUCTION TYPE  CARD
1101 10 65          MZ     ADDR-1,HOLDZN                                              7  1347  Y P03 P14           172
1102 10 66          B      MODALT                                                     4  1354  B O52               172
1103 10 67          MLC    RESULT-1,ADDR                                              7  1358  M P10 P04           172
MP37P07MK!3P07YK|3P07YP03P14BO52MP10P04L039T64,T33T40,T47T54,T58040104001722TAP5
1104 10 68          MZ     HOLDZN,ADDR-1                                              7  1365  Y P14 P03           173
1105 10 69          A      @10@,X1                                                    7  1372  A P81 089           173
1106 10 70          BCE    OUTADD,PARAMT&10&X1,                                       8  1379  B 633 K|3           173
1107 10 71   INDADD MLC    @000@,X2                                                   7  1387  M P37 094           173
1108 10 72          MN     PARAMT&12&X1,X2                                            7  1394  D K|5 094           173
YP14P03AP81089B633K|3 MP37094DK|5094   L036U00,T72T79,T87T94,040040104001732TAP5
1109 10 73          MZ     ZONE&X2,ADDR-1                                             7  1401  Y KP1 P03           174
1110 10 74          B      OUTADD                                                     4  1408  B 633               174
1111 10 75   DOBADD MLC    ADDR,BOPND                                                 7  1412  M P04 K68           174
1112 10 76          CW     ADONE                                                      4  1419  ) P16               174
1113 10 77          MLC    DADDR,BADDR                                                7  1423  M P62 J80           174
1114 10 78          BW     BLIT,SAVLIT                                                8  1430  V U50 P15 1         174
YKP1P03B633MP04K68)P16MP62J80VU50P151  L037U37,U08U12,U19U23,U30040104001742TAP5
1115 10 79   DONE   BCE    LADBCK,PARAMT&61,D                                         8  1438  B 998 K54 D         175
1116 10 80          B      PUT                                                        4  1446  B Y11               175
1117 10 81   BLIT   CW     SAVLIT                                                     4  1450  ) P15               175
1118 10 82          B      DONE                                                       4  1454  B U38               175
1119 10 83   *                         TLU DUPLICATED SHORT LITERALS
1120 10 84   CNVRTD LCA    PARAMT&5&X1,LABTBL-3&X3                                    7  1458  L JZ8 QA0           175
1121 10 85          B      TLULAB                                                     4  1465  B L59               175
1122 10 86          B      *&5                                                        4  1469  B U77               175
B998K54DBY11)P15BU38LJZ8QA0BL59BU77    L035U72,U46U50,U54U58,U65U69104001752TAP5
1123 10 87          H      *-3                                                        4  1473  . U73               176
1124 10 88          SW     LABTBL-8&X3                                                4  1477  , Q?5               176
1125 10 89          C      X2,LASTLT                                                  7  1481  C 094 009           176
1126 10 90          B      ADJXX                                                      4  1488  B Z24               176
1127 10 901         NOP                                                               1  1492  N                   176
1128 10 91          CW     LABTBL-8&X3                                                4  1493  ) Q?5               176
1129 10 92          BW     TSTFUL,LABTBL-8&X2                                         8  1497  V /61 Q!5 1         176
.U73,Q?5C094009BZ24N)Q?5V/61Q!51       L032V04,U77U81,U88U92,U93U97104001762TAP5
1130 10 93          B      HITSYM&12                                                  4  1505  B /35               177
1131 10 94   *                         TEST CONTROL ENTRIES
1132 10 97   CONTRL C      OPER,@EQU @                                                7  1509  C J16 P85           177
1133 10 98          BE     GETEQU                                                     5  1516  B V56 S             177
1134 10 99          C      OPER,@END @                                                7  1521  C J16 P89           177
1135 11 00          BE     LTDONE                                                     5  1528  B V64 S             177
1136 11 01          MLC    @000@,X1                                                   7  1533  M P37 089           177
B/35CJ16P85BV56SCJ16P89BV64SMP37089    L035V39,V09V16,V21V28,V33040104001772TAP5
1137 11 02          C      OPER,@XFR @                                                7  1540  C J16 P93           178
1138 11 03          BE     TEST&22                                                    5  1547  B 527 S             178
1139 11 04          B      PUT                                                        4  1552  B Y11               178
1140 11 44   *                         PROCESS EQUATE ENTRIES
1141 11 45   GETEQU B      PUT                                                        4  1556  B Y11               178
1142 11 46   *                         PROCESS LTORG ENTRIES
1143 11 47   LIT    SW     LITX                                                       4  1560  , P20               178
1144 11 48   LTDONE BW     LITBCK-12,RECORD&4                                         8  1564  V X13 J02 1         178
1145 11 49          MLC    &LITBCK,OUT&3                                              7  1572  M P96 Y32           178
CJ16P93B527SBY11BY11,P20VX13J021MP96Y32L039V78,V47V52,V56V60,V64V72104001782TAP5
1146 11 50          C      LITLOC,X3                                                  7  1579  C P53 099           179
1147 11 51          BE     LIT1                                                       5  1586  B W94 S             179
1148 11 52          BW     *&9,LOCATN                                                 8  1591  V W07 J92 1         179
1149 11 53          SW     RECORD&4                                                   4  1599  , J02               179
1150 11 54          B      LITBCK-12                                                  4  1603  B X13               179
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 SEQ PG LIN  LABEL  OP    OPERANDS                                            SFX CT  LOCN  INSTRUCTION TYPE  CARD
1151 11 55          MLC   LITLOC,X1                                                7  1607  M P53 089           179
CP53099BW94SVW07J921,J02BX13MP53089    L035W13,V86V91,V99W03,W07040104001792TAP5
1152 11 56          BW    LIT1,LABTBL-8&X1                                         8  1614  V W94 Q|5 1         180
1153 11 57          BW    LIT1,LABTBL&X1                                           8  1622  V W94 Q/3 1         180
1154 11 58          CW    LOCATN                                                   4  1630  ) J92               180
1155 11 59          MLC   LABTBL-6&X1,LOCATN                                       7  1634  M Q|7 J92           180
1156 11 60          BCE   CALLTT,PARAMT,*                                          8  1641  B W61 J93 *         180
VW94Q|51VW94Q/31)J92MQ|7J92BW61J93*    L035W48,W22W30,W34W41,040040104001802TAP5
1157 11 61          BCE   CALLTT,OPER-3,E                                          8  1649  B W61 J13 E         181
1158 11 62          B     LIT1-8                                                   4  1657  B W86               181
1159 11 63   CALLTT MLC   LOCATN,ADDR                                              7  1661  M J92 P04           181
1160 11 64          MLC   LABTBL&X1,HOLD                                           7  1668  M Q/3 P07           181
1161 11 65          B     MODALT                                                   4  1675  B O52               181
1162 11 66          MLC   RESULT-1,ORGBAS                                          7  1679  M P10 P28           181
BW61J13EBW86MJ92P04MQ/3P07BO52MP10P28  L037W85,W57W61,W68W75,W79040104001812TAP5
1163 11 67          SW    RECORD&4           MARK LTORG AS PROCESSED               4  1686  , J02               182
1164 11 68          B     LITBCK-12                                                4  1690  B X13               182
1165 11 69   LIT1   BW    LITBCK-12,FULL                                           8  1694  V X13 194 1         182
1166 11 70          SW    ERRPOS                                                   4  1702  , J84               182
1167 11 71          LCA   @000@,LOCATN                                             7  1706  L P37 J92           182
1168 11 72          BCE   TEST&22,OPER-3,E                                         8  1713  B 527 J13 E         182
1169 11 73          B     PUT                                                      4  1721  B Y11               182
,J02BX13VX131941,J84LP37J92B527J13EBY11L039X24,W90W94,X02X06,X13X21104001822TAP5
1170 11 74   LITBCK MLC   &GET,OUT&3                                               7  1725  M P99 Y32           183
1171 11 75          MLC   X3,BASIC                                                 7  1732  M 099 P43           183
1172 11 76          MLC   LITLOC,LITBEG-2                                          7  1739  M P53 P23           183
1173 11 77          BW    *&8,LITX                                                 8  1746  V X61 P20 1         183
1174 11 78          MLC   LITLOC,LASTLT                                            7  1754  M P53 009           183
MP99Y32M099P43MP53P23VX61P201MP53009   L036X60,X32X39,X46X54,040040104001832TAP5
1175 11 79          MLC   LITLOC,X3                                                7  1761  M P53 099           184
1176 11 80          MLC   LITLOC,TEMP1                                             7  1768  M P53 P31           184
1177 11 81          B     TLULIT                                                   4  1775  B 338               184
1178 11 82   *                        DECLARATIVE ENTRIES - BYPASS IF CONSTANT
1179 11 83   *                             IF ADDRESS CONSTANT, LOOK IT UP
1180 11 84   DECL   BCE   TLUADC,AADDR,C                                           8  1779  B 961 J79 C         184
1181 11 85          BCE   TEST&22,AADDR,S                                          8  1787  B 527 J79 S         184
MP53099MP53P31B338B961J79CB527J79S     L034X94,X68X75,X79X87,040040104001842TAP5
1182 11 86          BCE   TEST&22,AADDR,A                                          8  1795  B 527 J79 A         185
1183 11 87          B     PUT                                                      4  1803  B Y11               185
1184 11 88   *                        MARK LITERAL RECORD AS PROCESSED
1185 11 89   PUTX   SW    RECORD&4                                                 4  1807  , J02               185
1186 11 90   *                        PUT A RECORD
1187 11 91   PUT    WTW   2,RECORD                                                 8  1811  L %U2 !98 W         185
1188 11 92          BER   TPERR                                                    5  1819  B 201 L             185
1189 11 93          BEF   *&1                                                      5  1824  B Y29 K             185
1190 11 94   OUT    B     GET                                                      4  1829  B 416               185
B527J79ABY11,J02L%U2!98WB201LBY29KB416 L038Y32,Y03Y07,Y11Y19,Y24Y29104001852TAP5
1191 11 95   ENDPH3 RWD   1                                                        5  1833  U %U1 R             186
1192 11 96          WTM   2                                                        5  1838  U %U2 M             186
1193 11 97          RWD   2                                                        5  1843  U %U2 R             186
1194 11 98          BW    *&19,REITER                                              8  1848  V Y74 193 1         186
1195 11 99          MLC   @8@,SEEK                                                 7  1856  M Q00 125           186
1196 12 00          NOP   666,666                                                  7  1863  N 666 666           186
U%U1RU%U2MU%U2RVY741931MQ00125N666666  L037Y69,Y38Y43,Y48Y56,Y63040104001862TAP5
1197 12 01          B     *&15                                                     4  1870  B Y88               187
1198 12 02          MLC   @8@,SEEK                                                 7  1874  M Q00 125           187
1199 12 03          NOP   555,555                                                  7  1881  N 555 555           187
1200 12 04          CW    PARTBL&84                                                4  1888  ) K63               187
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                         1401 TWO-TAPE AUTOCODER - PHASE 5 - TLU LABELS   RBR       2TAP5              PAGE   26

 SEQ PG LIN  LABEL  OP    OPERANDS                                         SFX CT  LOCN  INSTRUCTION TYPE  CARD
1201 12 05          CW    BOPND&1                                               4  1892  ) K69              187
1202 12 06          CW    HIGH3&1,GPMK                                          7  1896  ) Q02 K70          187
1203 12 07          B     LOAD                                                  4  1903  B 100              187
BY88MQ00125N555555)K63)K69)Q02K70B100  L037Z06,Y74Y81,Y88Y92,Y96Z03104001872TAP5
1204 12 08   HIGHPT H                                                           1  1907  .                  188
1205 12 081  SETXX  MLC   @000@,HOLD                                            7  1908  M P37 P07          188
1206 12 082         SW    ADONE                                                 4  1915  , P16              188
1207 12 083         B     OUTADD&19                                             4  1919  B 652              188
1208 12 09          ORG   HIGH2&1                                                     2757
.MP37P07,P16B652                       L016Z22,Z08Z15,Z19040,040040104001882TAP5
1209 12 10          DCW   #1                                                    1  2757                     189
1210 12 11          LTORG HOLDZN&1                                                    2715
                                       L001P57,040040,040040,040040104001892TAP5
        913  SAVLIT DCW   #01                                                   1  2715             AREA   190
        913  ADONE        #01                                                   1  2716             AREA   190
        916  FSTIME       #01                                                   1  2717             AREA   190
        916  DOUBLE       #01                                                   1  2718             AREA   190
        917  LITONE       #01                                                   1  2719             AREA   190
        917  LITX         #01                                                   1  2720             AREA   190
        919  LITBEG       #05                                                   5  2725             AREA   190
                                       L011P25,P16P17,P18P19,P20P21104001902TAP5
        919  ORGBAS       #03                                                   3  2728             AREA   191
        920  TEMP1        #03                                                   3  2731             AREA   191
                          @   @                                                 3  2734             LIT    191
                          @000@                                                 3  2737             LIT    191
        922  LSTORG       #03                                                   3  2740             AREA   191
        924  BASIC        #03                                                   3  2743             AREA   191
                          @9@                                                   1  2744             LIT    191
         000      9                    L019P44,P29P32,P35P38,P41P44104001912TAP5
                          @00J@                                                 3  2747             LIT    192
        941  LITADD       #03                                                   3  2750             AREA   192
        942  LITLOC       #03                                                   3  2753             AREA   192
                          @LTOR@                                                4  2757             LIT    192
                          @EX  @                                                4  2761             LIT    192
        964  DADDR        #01                                                   1  2762             AREA   192
                          @D@                                                   1  2763             LIT    192
00J      LTOREX   D                    L019P63,P48P51,P54P58,P62P63104001922TAP5
                          @030@                                                 3  2766             LIT    193
                          @B@                                                   1  2767             LIT    193
                          @N@                                                   1  2768             LIT    193
                          @1@                                                   1  2769             LIT    193
       1017  BASE         #03                                                   3  2772             AREA   193
                          @005@                                                 3  2775             LIT    193
                          @###@                                                 3  2778             LIT    193
030BN1   005###                        L015P78,P67P68,P69P70,P73P76104001932TAP5
                          @ @                                                   1  2779             LIT    194
                          @10@                                                  2  2781             LIT    194
                          @EQU @                                                4  2785             LIT    194
                          @END @                                                4  2789             LIT    194
                          @XFR @                                                4  2793             LIT    194
       1145               &LITBCK                                               3  2796  X25        ADCON  194
       1170               &GET                                                  3  2799  416        ADCON  194
 10EQU END XFR X25416                  L021P99,P80P82,P86P90,P94P97104001942TAP5
                          @8@                                                   1  2800             LIT    195
1211 12 12   HIGH3  H                                                           1  2801  .                  195
1212 12 13          DCW   @}@                                                   1  2802                     195
1213                ORG   LITBEG-2                                                    2723
8.}                                    L003Q02,Q01Q02,040040,040040104001952TAP5
1214                DCW   @000@                                                 3  2725                     196
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                          1401 TWO-TAPE AUTOCODER - PHASE 5 - TLU LABELS   RBR       2TAP5              PAGE   27

 SEQ PG LIN  LABEL  OP    OPERANDS                                    SFX CT  LOCN  INSTRUCTION TYPE  CARD
1215                ORG   1924                                                       1924
000                                    L003P25,040040,040040,040040104001962TAP5
1216         ADJXX  SBR   ADJYY-1                                          4  1924  H Z52              197
1217                BWZ   ADJYY,092,2                                      8  1928  V Z53 092 2        197
1218                BWZ   ADJYY-4,007,2                                    8  1936  V Z49 007 2        197
1219                BH    TLUFST&8                                         5  1944  B L93 U            197
1220                B     000                                              4  1949  B 000              197
1221         ADJYY  BWZ   ADJYY-9,007,2                                    8  1953  V Z44 007 2        197
HZ52VZ530922VZ490072BL93UB000VZ440072  L037Z60,Z28Z36,Z44Z49,Z53040104001972TAP5
1222                B     TLUFST&8                                         4  1961  B L93              198
BL93                                   L004Z64,040040,040040,040040104001982TAP5
                                       N000000,040040,040040,040040B16701992TAP5
,015022)024056,029036,040047,0540611001,001008B001     ,001008B001      02002TAP6
,068072)063067/061039                                       ,001001104002012TAP6
1223 12 14          EX    SYSTEM                                                    B 167              199
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                         1401 TWO-TAPE AUTOCODER - PHASE 6 - PACK TABLE   RBR       2TAP6              PAGE   28

 SEQ PG LIN  LABEL  OP    OPERANDS                                        SFX CT  LOCN  INSTRUCTION TYPE  CARD
1224 12 15          JOB   1401 TWO-TAPE AUTOCODER - PHASE 6 - PACK TABLE   RBR
1225 12 16   *
1226 12 17   ******    PHASE 6 - CONDENSING OF RELATIVE ENTRIES IN SYMBOL TABLE
1227 12 18   *                        FOR REITERATION
1228 12 19   *
1229 12 20   *                      ***  PHASE 6 IDENTIFICATION AT 333  ***
1230 12 21   *
1231 12 22          ORG   333                                                              0333
1232 12 23          DCW   @6@                                                    1  0333                      202
1233 12 24   *
1234 12 25   RERUN  MLC   @000@,X1                                               7  0334  M 568 089           202
1235 12 26          MLC   @000@,X2                                               7  0341  M 568 094           202
1236 12 27   AVAIL  BW    SAVE1,LABTBL-5&X1                                      8  0348  V 437 Q|8 1         202
1237 12 28          BW    SAVE1,LABTBL-2&X1                                      8  0356  V 437 Q/1 1         202
1238 12 29          BW    SAVE1,LABTBL&X1                                        8  0364  V 437 Q/3 1         202
6M568089M568094V437Q|81V437Q/11V437Q/31L039371,334341,348356,364040104002022TAP6
1239 12 30          BW    SAVE,LABTBL-8&X1                                       8  0372  V 411 Q|5 1         203
1240 12 31          BCE   SAVE4,LABTBL-2&X1,#                                    8  0380  B 484 Q/1 #         203
1241 12 32   AVAIL1 C     X1,X3                                                  7  0388  C 089 099           203
1242 12 33          BE    PACKED                                                 5  0395  B 537 S             203
1243 12 34          A     @9@,X1                                                 7  0400  A 569 089           203
1244 12 35          B     AVAIL                                                  4  0407  B 348               203
V411Q|51B484Q/1#C089099B537SA569089B348L039410,380388,395400,407040104002032TAP6
1245 12 36   SAVE   B     CMP1T2                                                 4  0411  B 510               204
1246 12 37          LCA   LABTBL&X1,LABTBL&X2                                    7  0415  L Q/3 QJ3           204
1247 12 38          CW    LABTBL-8&X1                                            4  0422  ) Q|5               204
1248 12 39          A     @9@,X2                                                 7  0426  A 569 094           204
1249 12 40          B     AVAIL1                                                 4  0433  B 388               204
1250 12 41   SAVE1  B     CMP1T2                                                 4  0437  B 510               204
1251 12 42          BW    SAVE2,LABTBL-8&X1                                      8  0441  V 472 Q|5 1         204
B510LQ/3QJ3)Q|5A569094B388B510V472Q|51 L038448,415422,426433,437441104002042TAP6
1252 12 43          SW    LABTBL-8&X1                                            4  0449  , Q|5               205
1253 12 44          LCA   LABTBL&X1,LABTBL&X2                                    7  0453  L Q/3 QJ3           205
1254 12 45          MLC                                                          1  0460  M                   205
1255 12 46   SAVE3  LCA   @         @,LABTBL&X1                                  7  0461  L 578 Q/3           205
1256 12 47          B     SAVE&11                                                4  0468  B 422               205
1257 12 48   SAVE2  LCA   LABTBL&X1,LABTBL&X2                                    7  0472  L Q/3 QJ3           205
1258 12 49          LCA                                                          1  0479  L                   205
,Q|5LQ/3QJ3ML578Q/3B422LQ/3QJ3L        L031479,453460,461468,472479104002052TAP6
1259 12 50          B     SAVE3                                                  4  0480  B 461               206
1260 12 51   SAVE4  B     CMP1T2                                                 4  0484  B 510               206
1261 12 52          A     @9@,X2                                                 7  0488  A 569 094           206
1262 12 53          SW    LABTBL-8&X1                                            4  0495  , Q|5               206
1263 12 54          MLC   LABTBL&9&X1,LABTBL&X2                                  7  0499  M QS2 QJ3           206
1264 12 55          B     SAVE&11                                                4  0506  B 422               206
1265 12 56   *
1266 12 57   CMP1T2 SBR   CMPEXT&3                                               4  0510  H 524               206
B461B510A569094,Q|5MQS2QJ3B422H524     L034513,484488,495499,506510104002062TAP6
1267 12 58          C     X1,X2                                                  7  0514  C 089 094           207
1268 12 59   CMPEXT BU    0                                                      5  0521  B 000 /             207
1269 12 60          A     @9@,X2                                                 7  0526  A 569 094           207
1270 12 61          B     AVAIL1                                                 4  0533  B 388               207
1271 12 62   *
1272 12 63   PACKED MLC   X2,X3                                                  7  0537  M 094 099           207
1273 12 64          CW    HIGH5                                                  4  0544  ) 580               207
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                          1401 TWO-TAPE AUTOCODER - PHASE 6 - PACK TABLE   RBR       2TAP6               PAGE   29

 SEQ PG LIN  LABEL  OP    OPERANDS                                    SFX CT  LOCN  INSTRUCTION TYPE  CARD
C089094B000/A569094B388M094099)580     L034547,521526,533537,544040104002072TAP6
1274 12 65          MLC   @7@,SEEK                                          7  0548  M 579 125          208
1275 12 66          NOP   777,777                                           7  0555  N 777 777          208
1276 12 67          B     LOAD                                              4  0562  B 100              208
1277 12 68          LTORG *                                                           0566
                    DCW   @000@                                             3  0568              LIT    208
                          @9@                                               1  0569              LIT    208
       1255               @         @                                       9  0578              LIT    208
                          @7@                                               1  0579              LIT    208
M579125N777777B1000009         7       L032579,555562,566569,570579104002082TAP6
1278 12 69   HIGH5  DCW   @}@                                               1  0580                     209
1279 12 70          H                                                       1  0581  .                  209
1280 12 71          ORG   HIGH1                                                       2757
}.                                     L002581,581040,040040,040040104002092TAP6
1281 12 72          DCW   @|@                                               1  2757                     210
1282 12 73          ORG   HIGH3&1                                                     2802
|                                      L001P57,040040,040040,040040104002102TAP6
1283 12 74          DCW   #1                                                1  2802                     211
                                       L001Q02,040040,040040,040040104002112TAP6
                                       N000000,040040,040040,040040B16702122TAP6
,015022)024056,029036,040047,0540611001,001008B001     ,001008B001     02132TAP6
,068072)063067/061039                                       ,001001104002142TAP6
1284 12 75          EX    SYSTEM                                                     B 167              212
                                       /167080                         02152TAP6
1285 12 76          END   SYSTEM                                                     / 167 080          215
1CLEAR STORAGE 1     ,008015,019026,030,034041,045,053,0570571026                                          1
,008015,019026,030,034041,045,053,0570571026                           00012TAP8
CLEAR STORAGE 2     L068112,102106,113/101099/I99,027A070028)027B0010270B0261,001/001113I0                2
L068112,102106,113/101099/I99,027A070028)027B0010270B0261,001/001113I0 00022TAP8
BOOTSTRAP           ,008015,022029,036040,047054,061068,072/061039             ,0010011040                3
,008015,022029,036040,047054,061068,072/061039              ,001001104000032TAP8

                          1401 TWO-TAPE AUTOCODER, PHASE 8 - JULY 20, 1962 RBR       2TAP8               PAGE    1

 SEQ PG LIN  LABEL  OP    OPERANDS                                    SFX CT  LOCN  INSTRUCTION TYPE  CARD
 101         000    JOB   1401 TWO-TAPE AUTOCODER, PHASE 8 - JULY 20, 1962 RBR
 102                CTL   630 1
 103         *
 104         *                       PHASE 8 - PRINT OUT LABEL TABLE
 105         *
 106         *
 107         LABTBL EQU   2813&X1                                              2813
 108         REITER EQU   193                                                  0193
 109         *
 110         *                       ** SYSTEMS CONTROL **
 111                ORG   82                                                          0082
 112         CHECK  DCW   @ @                                               1  0082                       4
 113                DCW   @  }@                                             3  0085                       4
 114                ORG   100                                                         0100
   }                                   L004085,083040,040040,040040104000042TAP8
 115         LOAD   RWD   1                                                 5  0100  U %U1 R              5
 116                RTW   1,CHECK                                           8  0105  L %U1 082 R          5
 117                BER   TPERR                                             5  0113  B 363 L              5
 118                BCE   *&5,CHECK,D                                       8  0118  B 130 082 D          5
 119                B     LOAD&5                                            4  0126  B 105                5
 120                BSP   1                                                 5  0130  U %U1 B              5
U%U1RL%U1082RB363LB130082DB105U%U1B    L035134,105113,118126,130040104000052TAP8
 121                RTW   1,333                                             8  0135  L %U1 333 R          6
 122                SW    CHECK&3                                           4  0143  , 085                6
 123                RTW   1,CHECK                                           8  0147  L %U1 082 R          6
 124                BCE   334,CHECK,0                                       8  0155  B 334 082 0          6
 125                B     *-19                                              4  0163  B 147                6
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 126         SEEK   EQU   LOAD&25                                                      0125
 127         *
L%U1333R,085L%U1082RB3340820B147       L032166,143147,155163,040040104000062TAP8
 128         SYSTEM WTW   1,333                                                     8  0167  L %U1 333 W          7
 129                BER   *&5                                                       5  0175  B 184 L              7
 130                R     40                                                        4  0180  1 040                7
 131                BSP   1                                                         5  0184  U %U1 B              7
 132                SKP   1                                                         5  0189  U %U1 E              7
 133                B     SYSTEM                                                    4  0194  B 167                7
 134                H                                                               1  0198  .                    7
 135         X1     EQU   89                                                           0089
L%U1333WB184L1040U%U1BU%U1EB167.       L032198,175180,184189,194198104000072TAP8
 136         0089   DCW   @000@                                                     3  0089                       8
 137         X2     EQU   94                                                           0094
000                                    L003089,040040,040040,040040104000082TAP8
 138         0094   DCW   @000@                                                     3  0094                       9
 139         X3     EQU   99                                                           0099
000                                    L003094,040040,040040,040040104000092TAP8
 140         0099   DCW   @000@                                                     3  0099                      10
 141         *
 142         *                        PHASE 8 IDENTIFICATION AT 0333
 143         *
 144                ORG   333                                                                 0333
000                                    L003099,040040,040040,040040104000102TAP8
 145                DCW   @8@                                                       1  0333                      11
 146         *
 147                B     LABELS                                                    4  0334  B 650                11
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                         1401 TWO-TAPE AUTOCODER, PHASE 8 - JULY 20, 1962 RBR       2TAP8              PAGE    2

 SEQ PG LIN  LABEL  OP    OPERANDS                                           SFX CT  LOCN  INSTRUCTION TYPE  CARD
 148         *
 149         ENDPH8 RTW   1,333                                                   8  0338  L %U1 333 R         11
 150                BER   TPERR                                                   5  0346  B 363 L             11
 151                BCE   PHASE9,333,9                                            8  0351  B 649 333 9         11
 152                H     *-3                                                     4  0359  . 359               11
 153         *
 154         *                  GENERALIZED RD/WR TAPE ERROR ROUTINE
 155         *
 156         TPERR  SBR   X1                                                      4  0363  H 089               11
8B650L%U1333RB363LB6493339.359H089     L034366,334338,346351,359363104000112TAP8
 157                A     TX3987,X1                                               7  0367  A 496 089           12
 158                BW    TXCOMP,TXGET&1                                          8  0374  V 414 383 1         12
 159         TXGET  MLC   17&X1,TXEOF&4                                           7  0382  M 0/7 492           12
 160                MLC   TXDUMY&4,17&X1                                          7  0389  M 487 0/7           12
 161                MLC   3&X1,TXBSP&3                                            7  0396  M 0|3 425           12
A496089V4143831M0/7492M4870/7M0|3425   L036402,374382,389396,040040104000122TAP8
 162                MLC   TXBSP&5,TXBSP                                           7  0403  M 427 422           13
 163                SW    TXGET&1                                                 4  0410  , 383               13
 164         TXCOMP B     TXPERM,TXCNTL,9                                         8  0414  B 443 493 9         13
 165         TXBSP  BSP   1                                                       5  0422  U %U1 B             13
 166                SKP   1                                                       5  0427  U %U1 E             13
 167                A     *-6,TXCNTL                                              7  0432  A 432 493           13
M427422,383B4434939U%U1BU%U1EA432493   L036438,410414,422427,432040104000132TAP8
 168                B     0&X1                                                    4  0439  B 0|0               14
 169         TXPERM H     888,888                                                 7  0443  . 888 888           14
 170                MLC   TXPERM-1,TXCNTL                                         7  0450  M 442 493           14
 171                B     TXBSP                                                   4  0457  B 422               14
 172         TXDONE MLC   TXPERM-1,TXCNTL                                         7  0461  M 442 493           14
 173                MLC   TXEOF&4,17&X1                                           7  0468  M 492 0/7           14
B0|0.888888M442493B422M442493M4920/7   L036474,443450,457461,468040104000142TAP8
 174                CW    TXGET&1                                                 4  0475  ) 383               15
 175                B     13&X1                                                   4  0479  B 0/3               15
 176         TXDUMY B     TXDONE                                                  4  0483  B 461               15
 177                DC    @ @                                                     1  0487                      15
 178         TXEOF  BEF   1                                                       5  0488  B 001 K             15
 179         TXCNTL DCW   @0@                                                     1  0493                      15
 180         TX3987 DCW   @I87@                                                   3  0496                      15
 181         *                  ROUTINE TO CONVERT MACHINE ADDRESS TO
 182         *                       REGULAR FIVE POSITION ADDRESS
 183         *                     * MACHINE ADDRESS TAKEN FROM ADDR
 184         *                     * RESULT PLACED IN WORK
 185         DECOD  SBR   DECEXT&3                                                4  0497  H 632               15
)383B0/3B461 B001K0I87H632             L026500,479483,488493,494497104000152TAP8
 186                ZA    ADDR#3,WORK#5                                           7  0501  ? 635 640           16
 187                MZ    @ @,WORK                                                7  0508  Y 641 640           16
 188                BWZ   ADD12,ADDR,B                                            8  0515  V 567 635 B         16
 189                BM    ADD8,ADDR                                               8  0523  V 578 635 K         16
 190                BWZ   ADD4,ADDR,S                                             8  0531  V 589 635 S         16
?635640Y641640V567635BV578635KV589635S L038538,508515,523531,040040104000162TAP8
 191         HIORDR BWZ   ADD3,ADDR-2,B                                           8  0539  V 600 633 B         17
 192                BM    ADD2,ADDR-2                                             8  0547  V 611 633 K         17
 193                BWZ   ADD1,ADDR-2,S                                           8  0555  V 622 633 S         17
 194                B     DECEXT                                                  4  0563  B 629               17
 195         ADD12  A     @12@,WORK-3                                             7  0567  A 643 637           17
 196                B     HIORDR                                                  4  0574  B 539               17
V600633BV611633KV622633SB629A643637B539L039577,547555,563567,574040104000172TAP8
 197         ADD8   A     @8@,WORK-3                                              7  0578  A 644 637           18
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                           1401 TWO-TAPE AUTOCODER, PHASE 8 - JULY 20, 1962 RBR       2TAP8               PAGE    3

 SEQ PG LIN  LABEL  OP     OPERANDS                                             SFX CT  LOCN  INSTRUCTION TYPE  CARD
 198                B      HIORDR                                                    4  0585  B 539               18
 199         ADD4   A      @4@,WORK-3                                                7  0589  A 645 637           18
 200                B      HIORDR                                                    4  0596  B 539               18
 201         ADD3   A      @3@,WORK-3                                                7  0600  A 646 637           18
 202                B      DECEXT                                                    4  0607  B 629               18
A644637B539A645637B539A646637B629      L033610,585589,596600,607040104000182TAP8
 203         ADD2   A      @2@,WORK-3                                                7  0611  A 647 637           19
 204                B      DECEXT                                                    4  0618  B 629               19
 205         ADD1   A      @1@,WORK-3                                                7  0622  A 648 637           19
 206         DECEXT B      0                                                         4  0629  B 000               19
 207                LTORG *                                                                    0633
        186  ADDR   DCW    #03                                                       3  0635              AREA    19
        186  WORK          #05                                                       5  0640              AREA    19
                           @ @                                                       1  0641              LIT     19
A647637B629A648637B000                 L031641,618622,629633,636641104000192TAP8
                           @12@                                                      2  0643              LIT     20
                           @8@                                                       1  0644              LIT     20
                           @4@                                                       1  0645              LIT     20
                           @3@                                                       1  0646              LIT     20
                           @2@                                                       1  0647              LIT     20
                           @1@                                                       1  0648              LIT     20
 208         HIGH88 H                                                                1  0649  .                   20
 209         *
 210         *                        PRINT OUT SYMBOL TABLE
 211         *
1284321.                               L008649,644645,646647,648649104000202TAP8
 212         LABELS MLC    @|@,333                                                   7  0650  M Z93 333           21
 213                CC     1                                                         2  0657  F 1                 21
 214                MCM    201,AREA                                                  7  0659  P 201 T33           21
 215                CHAIN 2                                                                               MACRO
 216                MCM                                                              1  0666  P           GEN     21
 217                MCM                                                              1  0667  P           GEN     21
 218                LCA    @         @,LABTBL&X3                                     7  0668  L !02 QA3           21
 219                CW     LABTBL-8&X3                                               4  0675  ) Q?5               21
MZ93333F1P201T33PPL!02QA3)Q?5          L029678,657659,666667,668675104000212TAP8
 220                MCM    LINE&X0,201                                               7  0679  P S00 201           22
 221                MCM    TITLE-12,201                                              7  0686  P /01 201           22
 222                MLC    @ @,213                                                   7  0693  M !03 213           22
 223                CC     T                                                         2  0700  F T                 22
 224                W                                                                1  0702  2                   22
 225         *
 226         INITL  MLC    @000@,X1                                                  7  0703  M !06 089           22
 227                MLC    @000@,X2                                                  7  0710  M !06 094           22
PS00201P/01201M!03213FT2M!06089M!06094 L038716,686693,700702,703710104000222TAP8
 228                CS     LINE&131&X0                                               4  0717  / T31               23
 229                CS                                                               1  0721  /                   23
 230                MLC    TABLE,FIRST&7                                             7  0722  M Z60 743           23
 231                MLC    TABLE,LABTBL-8&X3                                         7  0729  M Z60 Q?5           23
 232         FIRST  BCE    HIT,LABTBL-8,D                                            8  0736  B 755 Q|5 D         23
 233                A      @9@,X1                                                    7  0744  A !07 089           23
 234                B      FIRST                                                     4  0751  B 736               23
/T31/MZ60743MZ60Q?5B755Q|5DA!07089B736 L038754,721722,729736,744751104000232TAP8
 235         HIT    C      X1,X3                                                     7  0755  C 089 099           24
 236                BE     ENDTAB                                                    5  0762  B |32 S             24
 237                BW     FIRST&8,LABTBL                                            8  0767  V 744 Q/3 1         24
 238                BW     FIRST&8,LABTBL-2                                          8  0775  V 744 Q/1 1         24
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                              1401 TWO-TAPE AUTOCODER, PHASE 8 - JULY 20, 1962 RBR       2TAP8              PAGE    4

 SEQ PG LIN  LABEL  OP    OPERANDS                                            SFX CT  LOCN  INSTRUCTION TYPE  CARD
 239                BW    FIRST&8,LABTBL-5                                         8  0783  V 744 Q|8 1         24
C089099B|32SV744Q/31V744Q/11V744Q|81   L036790,762767,775783,040040104000242TAP8
 240                BW    FIRST&8,LABTBL-8                                         8  0791  V 744 Q|5 1         25
 241                BW    FIRST&8,LABTBL-7                                         8  0799  V 744 Q|6 1         25
 242                BCE   FIRST&8,LABTBL-8,|                                       8  0807  B 744 Q|5 |         25
 243                BCE   FIRST&8,LABTBL-5,|                                       8  0815  B 744 Q|8 |         25
V744Q|51V744Q|61B744Q|5|B744Q|8|       L032822,799807,815040,040040104000252TAP8
 244                BCE   FIRST&8,LABTBL-7,|                                       8  0823  B 744 Q|6 |         26
 245                BCE   STEP,LABTBL-2,#                                          8  0831  B 933 Q/1 #         26
 246                SW    LINE                                                     4  0839  , S!0               26
 247                MLC   LABTBL-3,LINE&5                                          7  0843  M Q/0 S!5           26
 248                MLC   LABTBL,ADDR                                              7  0850  M Q/3 635           26
B744Q|6|B933Q/1#,S!0MQ/0S!5MQ/3635     L034856,831839,843850,040040104000262TAP8
 249                BCE   PERCNT,ADDR-2,%                                          8  0857  B 944 633 %         27
 250                MZ    @ @,ADDR-1                                               7  0865  Y !03 634           27
 251                B     DECOD                                                    4  0872  B 497               27
 252                LCA   EDIT1,LINE&11                                            7  0876  L Z92 SJ1           27
 253                MCE   WORK,LINE&11                                             7  0883  E 640 SJ1           27
B944633%Y!03634B497LZ92SJ1E640SJ1      L033889,865872,876883,040040104000272TAP8
 254                BWZ   INDEX1,LABTBL-1,S                                        8  0890  V 999 Q/2 S         28
 255         TSTX2  BWZ   INDEX2,LABTBL-1,K                                        8  0898  V |10 Q/2 K         28
 256         TSTX3  BWZ   INDEX3,LABTBL-1,B                                        8  0906  V |21 Q/2 B         28
 257         TSTLIN BCE   RESET2,X2-2,1                                            8  0914  B 955 092 1         28
 258                A     @16@,X2                                                  7  0922  A !09 094           28
V999Q/2SV|10Q/2KV|21Q/2BB9550921A!09094L039928,898906,914922,040040104000282TAP8
 259                B     FIRST&8                                                  4  0929  B 744               29
 260         STEP   A     @9@,X1                                                   7  0933  A !07 089           29
 261                B     FIRST&8                                                  4  0940  B 744               29
 262         PERCNT MLC   ADDR,LINE&11                                             7  0944  M 635 SJ1           29
 263                B     TSTLIN                                                   4  0951  B 914               29
 264         RESET2 C     X2,@000@                                                 7  0955  C 094 !06           29
 265                BE    RSTOUT-8                                                 5  0962  B 987 S             29
B744A!07089B744M635SJ1B914C094!06B987S L038966,933940,944951,955962104000292TAP8
 266                MLC   @000@,X2                                                 7  0967  M !06 094           30
 267                MCM   LINE&X0,201                                              7  0974  P S00 201           30
 268                W                                                              1  0981  2                   30
 269                CS    LINE&131&X0                                              4  0982  / T31               30
 270                CS                                                             1  0986  /                   30
 271                BW    ENDPRT,RSTOUT&1                                          8  0987  V |40 996 1         30
 272         RSTOUT B     FIRST&8                                                  4  0995  B 744               30
M!06094PS002012/T31/V|409961B744       L032998,974981,982986,987995104000302TAP8
 273         INDEX1 MLC   @&X1@,LINE&14                                            7  0999  M !12 SJ4           31
 274                B     TSTX2                                                    4  1006  B 898               31
 275         INDEX2 MLC   @&X2@,LINE&14                                            7  1010  M !15 SJ4           31
 276                B     TSTX3                                                    4  1017  B 906               31
 277         INDEX3 MLC   @&X3@,LINE&14                                            7  1021  M !18 SJ4           31
 278                B     TSTLIN                                                   4  1028  B 914               31
 279         ENDTAB SW    RSTOUT&1                                                 4  1032  , 996               31
M!12SJ4B898M!15SJ4B906M!18SJ4B914,996  L037|35,|06|10,|17|21,|28|32104000312TAP8
 280                B     RESET2                                                   4  1036  B 955               32
 281         ENDPRT CW    RSTOUT&1                                                 4  1040  ) 996               32
 282                MCM   TABLE&1,TABLE                                            7  1044  P Z61 Z60           32
 283                BCE   FINIS,TABLE,|                                            8  1051  B |63 Z60 |         32
 284                B     INITL                                                    4  1059  B 703               32
 285         FINIS  CC    1                                                        2  1063  F 1                 32
 286                BW    *&5,REITER                                               8  1065  V |77 193 1         32
B955)996PZ61Z60B|63Z60|B703F1V|771931  L037|72,|40|44,|51|59,|63|65104000322TAP8
 287                B     PHASE8                                                   4  1073  B V13               33
 288                CW    HIGH8                                                    4  1077  ) !80               33
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                      1401 TWO-TAPE AUTOCODER, PHASE 8 - JULY 20, 1962 RBR       2TAP8              PAGE    5

 SEQ PG LIN  LABEL  OP    OPERANDS                                        SFX CT  LOCN  INSTRUCTION TYPE  CARD
 289                MCM   AREA,201                                             7  1081  P T33 201           33
 290                CHAIN 2                                                                        MACRO
 291                MCM                                                        1  1088  P          GEN     33
 292                MCM                                                        1  1089  P          GEN     33
 293                MLC   @6@,SEEK                                             7  1090  M !19 125           33
 294                B     LOAD                                                 4  1097  B 100               33
BV13)!80PT33201PPM!19125B100           L028/00,|77|81,|88|89,|90|97104000332TAP8
 295         TITLE  DCW   @SYMBOL TABLE|@                                     13  1113                      34
 296         *
 297                ORG   *&X00                                                       1200
SYMBOL TABLE|                          L013/13,040040,040040,040040104000342TAP8
                                       L038S37)S00S00,040040,040040104000352TAP8
                                       L038S75)S38S38,040040,040040104000362TAP8
                                       L038T13)S76S76,040040,040040104000372TAP8
 298         LINE   DA    1X132,X2,|,C                                              1200   1332             38
                                       L019T32)T14T14,S00040,040040104000382TAP8
                    DC    @|@                                                  1  1332             RMARK   39
 299         *
 300         AREA   DA    1X180                                                     1333   1512             39
 301         *
|                                      L001T32)T32T32,T33040,040040104000392TAP8
 302         PHASE8 RTW   2,AREA                                               8  1513  L %U2 T33 R         40
 303                BER   TPERR                                                5  1521  B 363 L             40
 304         BOOT   LCA   BOOT1,0180                                           7  1526  L X99 180           40
 305                SW    AREA&75                                              4  1533  , U08               40
 306                MLC   @0001@,175                                           7  1537  M !23 175           40
 307                MLC   AREA&99,180                                          7  1544  M U32 180           40
L%U2T33RB363LLX99180,U08M!23175MU32180 L038V50,V21V26,V33V37,V44040104000402TAP8
 308                CS    332                                                  4  1551  / 332               41
 309                CS                                                         1  1555  /                   41
 310                MLC   171,290                                              7  1556  M 171 290           41
 311                MLC   @CLEAR STORAGE 1@,215                                7  1563  M !38 215           41
 312                MLC   @1@,314                                              7  1570  M !39 314           41
 313                WP                                                         1  1577  6                   41
 314                LCA   BOOT2,180                                            7  1578  L Y79 180           41
/332/M171290M!38215M!393146LY79180     L034V84,V55V56,V63V70,V77V78104000412TAP8
 315                MLC   @0002@,175                                           7  1585  M !43 175           42
 316                MLC   AREA&99,180                                          7  1592  M U32 180           42
 317                MLC   171,290                                              7  1599  M 171 290           42
 318                MLC   @CLEAR STORAGE 2@,215                                7  1606  M !58 215           42
 319                MLC   @2@,314                                              7  1613  M !59 314           42
 320                WP                                                         1  1620  6                   42
M!43175MU32180M171290M!58215M!593146   L036W20,V92V99,W06W13,W20040104000422TAP8
 321                LCA   BOOT3,180                                            7  1621  L Z59 180           43
 322                MLC   @0003@,175                                           7  1628  M !63 175           43
 323                MLC   AREA&99,180                                          7  1635  M U32 180           43
 324                MLC   171,290                                              7  1642  M 171 290           43
 325                MLC   @BOOTSTRAP      @,215                                7  1649  M !78 215           43
LZ59180M!63175MU32180M171290M!78215    L035W55,W28W35,W42W49,040040104000432TAP8
 326                MLC   @3@,314                                              7  1656  M !79 314           44
 327                CC    T                                                    2  1663  F T                 44
 328                WP                                                         1  1665  6                   44
 329                CS    332                                                  4  1666  / 332               44
 330                CS                                                         1  1670  /                   44
 331                RWD   2                                                    5  1671  U %U2 R             44
 332                BSP   1                                                    5  1676  U %U1 B             44
M!79314FT6/332/U%U2RU%U1B              L025W80,W63W65,W66W70,W71W76104000442TAP8
 333                BSP   1                                                    5  1681  U %U1 B             45
 334                BSP   1                                                    5  1686  U %U1 B             45
 335                BSP   1                                                    5  1691  U %U1 B             45
 336                BSP   1                                                    5  1696  U %U1 B             45
 337                BSP   1                                                    5  1701  U %U1 B             45
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                         1401 TWO-TAPE AUTOCODER, PHASE 8 - JULY 20, 1962 RBR       2TAP8              PAGE    6

 SEQ PG LIN  LABEL  OP    OPERANDS                                           SFX CT  LOCN  INSTRUCTION TYPE  CARD
 338                BSP   1                                                       5  1706  U %U1 B             45
 339                CW    HIGH8                                                   4  1711  ) !80               45
U%U1BU%U1BU%U1BU%U1BU%U1BU%U1B)!80      L034X14,W86W91,W96X01,X06X11104000452TAP8
 340                B     ENDPH8                                                  4  1715  B 338               46
 341                H                                                             1  1719  .                   46
B338.                                   L005X19,X19040,040040,040040104000462TAP8
,008015,019026,030,034041,045,053,05705L039X58,040040,040040,040040104000472TAP8
 342                DCW   @,008015,019026,030,034041,045,053,057057@             40  1759                      48
7                                       L001X59)X59X59,040040,040040104000482TAP8
1026                                    L039X98)X60X60,040040,040040104000492TAP8
 343         BOOT1  DC    @1026                                  @               40  1799                      50
                                        L001X99)X99X99,040040,040040104000502TAP8
L068112,102106,113/101099/I99,027A07002L039Y38,040040,040040,040040104000512TAP8
 344                DCW   @L068112,102106,113/101099/I99,027A070028@             40  1839                      52
8                                       L001Y39)Y39Y39,040040,040040104000522TAP8
)027B0010270B0261,001/001113I0          L039Y78)Y40Y40,040040,040040104000532TAP8
 345         BOOT2  DC    @)027B0010270B0261,001/001113I0          @             40  1879                      54
                                        L001Y79)Y79Y79,040040,040040104000542TAP8
,008015,022029,036040,047054,061068,072L039Z18,040040,040040,040040104000552TAP8
 346                DCW   @,008015,022029,036040,047054,061068,072/@             40  1919                      56
/                                       L001Z19)Z19Z19,040040,040040104000562TAP8
061039              ,0010011040         L039Z58)Z20Z20,040040,040040104000572TAP8
 347         BOOT3  DC    @061039             ,0010011040         @              40  1959                      58
 348         TABLE  DCW   @A@                                                     1  1960                      58
 349                DC    @BCDEFGHIJKLMNOPQRSTUVWXYZ@                            25  1985                      58
 350                DC    @|@                                                     1  1986                      58
 351         EDIT1  DCW   @ 0    @                                                6  1992                      58
 352                LTORG *                                                           1993
                    DCW   @|@                                                     1  1993              LIT     58
 ABCDEFGHIJKLMNOPQRSTUVWXYZ| 0    |     L035Z93)Z59Z59,Z60Z87,Z93040104000582TAP8
       218                @         @                                             9  2002              LIT     59
                          @ @                                                     1  2003              LIT     59
                          @000@                                                   3  2006              LIT     59
                          @9@                                                     1  2007              LIT     59
                          @16@                                                    2  2009              LIT     59
                          @&X1@                                                   3  2012              LIT     59
                          @&X2@                                                   3  2015              LIT     59
          000916&X1&X2                  L022!15,!03!04,!07!08,!10!13104000592TAP8
                          @&X3@                                                   3  2018              LIT     60
                          @6@                                                     1  2019              LIT     60
                          @0001@                                                  4  2023              LIT     60
       311                @CLEAR STORAGE 1@                                      15  2038              LIT     60
                          @1@                                                     1  2039              LIT     60
                          @0002@                                                  4  2043              LIT     60
&X360001CLEAR STORAGE 110002            L028!43,!19!20,!24!39,!40040104000602TAP8
       318                @CLEAR STORAGE 2@                                      15  2058              LIT     61
                          @2@                                                     1  2059              LIT     61
                          @0003@                                                  4  2063              LIT     61
       325                @BOOTSTRAP      @                                      15  2078              LIT     61
                          @3@                                                     1  2079              LIT     61
 353         HIGH8  DCW   @}@                                                     1  2080                      61
CLEAR STORAGE 220003BOOTSTRAP      3}   L037!80,!59!60,!64!79,!80040104000612TAP8
                                        N000000,040040,040040,040040B16700622TAP8
,015022)024056,029036,040047,0540611001,001008B001     ,001008B001     00632TAP9
,068072)063067/061039                                     ,001001104000642TAP9
 354                EX    SYSTEM                                                       B 167               62
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                          1401 TWO-TAPE AUTOCODER - PHASE 9 - LIST & CONDS RBR       2TAP9              PAGE    7

 SEQ PG LIN  LABEL  OP    OPERANDS                                            SFX CT  LOCN  INSTRUCTION TYPE  CARD
 355                JOB   1401 TWO-TAPE AUTOCODER - PHASE 9 - LIST & CONDS RBR
 356         *
 357         *                  PHASE 9 - CONDENSING AND LISTING ROUTINE
 358         *
 359         *                  PHASE 9 IDENTIFICATION AT 333
 360         *
 361                ORG   333                                                                0333
 362                DCW   @9@                                                      1  0333                       65
 363         *
 364                H     *-3                                                      4  0334  . 334                65
 365                RTW   1,333                                                    8  0338  L %U1 333 R          65
 366                BER   TPERR                                                    5  0346  B 363 L              65
 367                BCE   PHASE9,333,9                                             8  0351  B 649 333 9          65
 368                H     *-3                                                      4  0359  . 359                65
 369         *
 370                ORG   HIGH88                                                             0649
9.334L%U1333RB363LB6493339.359         L030362,334338,346351,359040104000652TAP9
 371         PHASE9 B     HSKPG                                                    4  0649  B R87                66
 372         *
 373                ORG   PHASE9&4                                                           0653
 374         HSKPG1 RTW   2,RECORD                                                 8  0653  L %U2 R86 R          66
 375                BER   TPERR                                                    5  0661  B 363 L              66
 376         *
 377         REINIT MLC   @0@,COUNT#1                                              7  0666  M A58 A59            66
 378                MLC   @000@,X1                                                 7  0673  M A62 089            66
 379                MLC   @000@,X2                                                 7  0680  M A62 094            66
BR87L%U2R86RB363LMA58A59MA62089MA62094 L038686,653661,666673,680040104000662TAP9
 380                MLC   @000@,X3                                                 7  0687  M A62 099            67
 381                MLC   @0000@,POSCNT#4                                          7  0694  M A66 A70            67
 382                MLC   @        @,ASSMBD#8                                      7  0701  M A78 A86            67
 383                SW    101,140                                                  7  0708  , 101 140            67
 384                B     AGAIN                                                    4  0715  B 756                67
 385         *
 386         GETOBJ CW    AOPND-12                                                 4  0719  ) A41                67
MA62099MA66A70MA78A86,101140B756)A41   L036722,694701,708715,719040104000672TAP9
 387                RTW   2,RECORD                                                 8  0723  L %U2 R86 R          68
 388                BER   TPERR                                                    5  0731  B 363 L              68
 389                BEF   EOF4                                                     5  0736  B F33 K              68
 390                SW    AOPND-2,BOPND-2                                          7  0741  , A51 A54            68
 391                B     COMMNT,RECORD&5,*                                        8  0748  B O46 R91 *          68
 392         *
L%U2R86RB363LBF33K,A51A54BO46R91*      L033755,731736,741748,040040104000682TAP9
 393         AGAIN  BW    SUBDA,SUBNXT                                             8  0756  V C57 C23 1          69
 394                BW    *&5,LITCTL                                               8  0764  V 776 C25 1          69
 395                B     *&13                                                     4  0772  B 788                69
 396                BW    *&5,RECORD&3                                             8  0776  V 788 R89 1          69
 397                B     CDFULL                                                   4  0784  B M88                69
VC57C231V776C251B788V788R891BM88       L032787,764772,776784,040040104000692TAP9
 398                BW    CDFULL,ISOLAT                                            8  0788  V M88 C24 1          70
 399                C     OPER,@EX  @                                              7  0796  C ?04 A90            70
 400                BE    EXECUT                                                   5  0803  B D03 S              70
 401                C     OPER,@XFR @                                              7  0808  C ?04 A94            70
 402                BE    EXECUT                                                   5  0815  B D03 S              70
 403                C     OPER,@CTL @                                              7  0820  C ?04 A98            70
VM88C241C?04A90BD03SC?04A94BD03SC?04A98L039826,796803,808815,820040104000702TAP9
 404                BE    PRINT1                                                   5  0827  B Y43 S              71
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                         1401 TWO-TAPE AUTOCODER - PHASE 9 - LIST & CONDS RBR       2TAP9               PAGE    8

 SEQ PG LIN  LABEL  OP    OPERANDS                                              SFX CT  LOCN  INSTRUCTION TYPE  CARD
 405         *
 406                C     OPER,@JOB @                                                7  0832  C ?04 B02           71
 407                BU    NOTJOB                                                     5  0839  B 892 /             71
 408                MLC   RECORD&71,HEADNG                                           7  0844  M ?57 072           71
 409                MLC   PARAMT&4,SETUP-1                                           7  0851  M ?85 Q10           71
 410                LCA   SETUP-1,180                                                7  0858  L Q10 180           71
BY43SC?04B02B892/M?57072M?85Q10LQ10180 L038864,832839,844851,858040104000712TAP9
 411                NOP   JOBACK&4           1ST-TIME-ONLY NOP                       4  0865  N 884               72
 412                MLC   @B@,*-10                                                   7  0869  M B03 865           72
 413                B     GETOVF                                                     4  0876  B D63               72
 414         JOBACK B     PRINT1                                                     4  0880  B Y43               72
 415                B     OVFLO                                                      4  0884  B C27               72
 416                B     PRINT1                                                     4  0888  B Y43               72
 417         *
 418         NOTJOB C     OPER,@DS  @                                                7  0892  C ?04 B07           72
N884MB03865BD63BY43BC27BY43C?04B07     L034898,869876,880884,888892104000722TAP9
 419                BE    DS                                                         5  0899  B P11 S             73
 420                C     OPER,@END @                                                7  0904  C ?04 B11           73
 421                BE    END                                                        5  0911  B D15 S             73
 422                BW    PRINT2,RECORD                                              8  0916  V L24 R86 1         73
 423                BCE   INSTRT-8,LABEL-5,                                          8  0924  B 968 R91           73
BP11SC?04B11BD15SVL24R861B968R91       L033931,904911,916924,040040104000732TAP9
 424                BWZ   *&5,LABEL-5,2                                              8  0932  V 944 R91 2         74
 425                B     INSTRT-8                                                   4  0940  B 968               74
 426                BW    *&9,FSTIME                                                 8  0944  V 960 C22 1         74
 427                SW    FSTIME                                                     4  0952  , C22               74
 428                B     CDFULL                                                     4  0956  B M88               74
 429                CW    FSTIME                                                     4  0960  ) C22               74
 430                SW    ISOLAT                                                     4  0964  , C24               74
V944R912B968V960C221,C22BM88)C22,C24   L036967,940944,952956,960964104000742TAP9
 431                BCE   CONST,ICOUNT,                                              8  0968  B T05 ?73           75
 432         *
 433         INSTRT MLC   POSCNT,SPACE#4                                             7  0976  M A70 B15           75
 434                A     ICOUNT,POSCNT                                              7  0983  A ?73 A70           75
 435                C     POSCNT,@0039@                                              7  0990  C A70 B19           75
 436                BL    CDFULL                                                     5  0997  B M88 T             75
BT05?73 MA70B15A?73A70CA70B19BM88T     L034|01,976983,990997,040040104000752TAP9
 437                BCE   CDFULL,COUNT,7                                             8  1002  B M88 A59 7         76
 438                A     @1@,COUNT                                                  7  1010  A B20 A59           76
 439                MLC   POSCNT,SPACE                                               7  1017  M A70 B15           76
 440                LCA   LOCATN,SWADDR&X2                                           7  1024  L ?80 PM8           76
 441                A     @3@,X2                                                     7  1031  A B21 094           76
BM88A597AB20A59MA70B15L?80PM8AB21094   L036|37,|10|17,|24|31,040040104000762TAP9
 442                LCA   SWADDR-3&X2,SWADDR&X2                                      7  1038  L PM5 PM8           77
 443                ZA    ICOUNT,HOLD                                                7  1045  ? ?73 B95           77
 444                MLC   SWADDR&X2,ADDR                                             7  1052  M PM8 635           77
 445                B     MODAD                                                      4  1059  B Q12               77
 446         P4SK1  LCA   RESULT-1,SWADDR&X2                                         7  1063  L C02 PM8           77
 447                A     ICOUNT,X3                                                  7  1070  A ?73 099           77
LPM5PM8??73B95MPM8635BQ12LC02PM8A?73099L039|76,|45|52,|59|63,|70040104000772TAP9
 448                B     SETXX                                                      4  1077  B I75               78
 449                NOP                                                              1  1081  N                   78
 450                NOP                                                              1  1082  N                   78
 451                NOP                                                              1  1083  N                   78
 452                BCE   IDONE,ICOUNT,1                                             8  1084  B /56 ?73 1         78
 453                BCE   ADMOD,ICOUNT,2                                             8  1092  B /67 ?73 2         78
 454                MLC   AOPND,ASSMBD-4                                             7  1100  M A53 A82           78
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                        1401 TWO-TAPE AUTOCODER - PHASE 9 - LIST & CONDS RBR       2TAP9              PAGE    9

 SEQ PG LIN  LABEL  OP    OPERANDS                                           SFX CT  LOCN  INSTRUCTION TYPE  CARD
BI75NNNB/56?731B/67?732MA53A82        L030/06,|81|82,|83|84,|92/00104000782TAP9
 455               BCE   BRANCH,ICOUNT,4                                          8  1107  B /85 ?73 4         79
 456               BCE   BDMOD,ICOUNT,5                                           8  1115  B /96 ?73 5         79
 457               MLC   BOPND,ASSMBD-1                                           7  1123  M A56 A85           79
 458               BCE   NODMOD,ICOUNT,7                                          8  1130  B S14 ?73 7         79
 459               MLC   PARAMT&60,ASSMBD                                         7  1138  M A41 A86           79
B/85?734B/96?735MA56A85BS14?737MA41A86 L038/44,/15/23,/30/38,040040104000792TAP9
 460               MLC   ASSMBD,100&X3                                            7  1145  M A86 1?0           80
 461               B     ASSOUT                                                   4  1152  B S21               80
 462         IDONE  MLC   ASSMBD-7,100&X3                                         7  1156  M A79 1?0           80
 463               B     ASSOUT                                                   4  1163  B S21               80
 464         ADMOD  MLC   PARAMT&60,ASSMBD-6                                      7  1167  M A41 A80           80
 465               MLC   ASSMBD-6,100&X3                                          7  1174  M A80 1?0           80
MA861?0BS21MA791?0BS21MA41A80MA801?0   L036/80,/52/56,/63/67,/74040104000802TAP9
 466               B     ASSOUT                                                   4  1181  B S21               81
 467         BRANCH MLC   ASSMBD-4,100&X3                                         7  1185  M A82 1?0           81
 468               B     ASSOUT                                                   4  1192  B S21               81
 469         BDMOD  MLC   PARAMT&60,ASSMBD-3                                      7  1196  M A41 A83           81
 470               MLC   ASSMBD-3,100&X3                                          7  1203  M A83 1?0           81
 471               B     ASSOUT                                                   4  1210  B S21               81
BS21MA821?0BS21MA41A83MA831?0BS21      L033S13,/85/92,/96S03,S10040104000812TAP9
 472         NODMOD MLC   ASSMBD-1,100&X3                                         7  1214  M A85 1?0           82
 473         ASSOUT CS    332                                                     4  1221  / 332               82
 474               CS                                                             1  1225  /                   82
 475               MLC   ICOUNT,284                                               7  1226  M ?73 284           82
 476               SW    303,299                                                  7  1233  , 303 299           82
 477               SW    295,293                                                  7  1240  , 295 293           82
MA851?0/332/M?73284,303299,295293      L033S46,S21S25,S26S33,S40040104000822TAP9
 478               MLC   ASSMBD,303                                               7  1247  M A86 303           83
 479               MLC   ASSMBD-1,301                                             7  1254  M A85 301           83
 480               MLC   ASSMBD-4,297                                             7  1261  M A82 297           83
 481               MLC   ASSMBD-7,293                                             7  1268  M A79 293           83
 482               MLC   @        @,ASSMBD                                        7  1275  M B29 A86           83
MA86303MA85301MA82297MA79293MB29A86    L035S81,S54S61,S68S75,040040104000832TAP9
 483               BCE   *&5,PARAMT&60,G                                          8  1282  B S94 A41 G         84
 484               B     PRINT                                                    4  1290  B X78               84
 485               MLC   PARAMT&64,309                                            7  1294  M A45 309           84
 486               B     PRINT                                                    4  1301  B X78               84
 487         *
 488         CONST  C     OPER,@DA  @                                             7  1305  C ?04 B33           84
 489               BE    DAOUT                                                    5  1312  B C45 S             84
BS94A41GBX78MA45309BX78C?04B33BC45S    L035T16,S90S94,T01T05,T12040104000842TAP9
 490               BCE   NUMOUT,PARAMT&60,M                                       8  1317  B X05 A41 M         85
 491               BW    *&5,PARAMT&65                                            8  1325  V T37 A46 1         85
 492               B     *&21                                                     4  1333  B T57               85
 493               BW    *&9,FSTIME                                               8  1337  V T53 C22 1         85
 494               SW    FSTIME                                                   4  1345  , C22               85
 495               B     CDFULL                                                   4  1349  B M88               85
BX05A41MVT37A461BT57VT53C221,C22BM88   L036T52,T25T33,T37T45,T49040104000852TAP9
 496               CW    FSTIME                                           )))     4  1353  ) C22               86
 497               C     OPER&1,@DC   @                                           7  1357  C ?05 B38           86
 498               BU    *&5                                                      5  1364  B T73 /             86
 499               CW    ERRPOS-1                                                 4  1369  ) ?71               86
 500               MLC   POSCNT,SPACE                                             7  1373  M A70 B15           86
 501               A     LITCNT,POSCNT                                            7  1380  A ?76 A70           86
)C22C?05B38BT73/)?71MA70B15A?76A70     L034T86,T57T64,T69T73,T80040104000862TAP9
 502               C     POSCNT,@0039@                                            7  1387  C A70 B19           87
 503               BL    TSTLNG                                                   5  1394  B J58 T             87
 504               BCE   CDFULL,COUNT,7                                           8  1399  B M88 A59 7         87
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                              1401 TWO-TAPE AUTOCODER - PHASE 9 - LIST & CONDS RBR       2TAP9              PAGE   10

 SEQ PG LIN  LABEL  OP    OPERANDS                                             SFX CT  LOCN  INSTRUCTION TYPE  CARD
 505                A     @1@,COUNT                                         )))     7  1407  A B20 A59            87
 506                MLC   POSCNT,SPACE                                              7  1414  M A70 B15            87
CA70B19BJ58TBM88A597AB20A59MA70B15     L034U20,T94T99,U07U14,040040104000872TAP9
 507                BW    NOWM1,SPLIT&5      ON 2ND HALF OF LONG CONSTANT           8  1421  V J11 K38 1          88
 508                C     OPER,@DC  @                                               7  1429  C ?04 B42            88
 509                BE    NOWM                                                      5  1436  B !09 S              88
 510         FSTCON BCE   *&5,COUNT,1                                               8  1441  B U53 A59 1          88
 511                B     CONBCK-14                                                 4  1449  B U85                88
 512                MLC   LOCATN,SWADDR                                             7  1453  M ?80 P48            88
VJ11K381C?04B42B!09SBU53A591BU85M?80P48L039U59,U29U36,U41U49,U53040104000882TAP9
 513                ZA    @1@,HOLD                                                  7  1460  ? B20 B95            89
 514                A     @3@,X2                                                    7  1467  A B21 094            89
 515                LCA   SWADDR-3&X2,SWADDR&X2                                     7  1474  L PM5 PM8            89
 516                B     CONBCK&7                                                  4  1481  B V06                89
 517                A     @3@,X2                                                    7  1485  A B21 094            89
 518                LCA   SWADDR-3&X2,SWADDR&X2                                     7  1492  L PM5 PM8            89
?B20B95AB21094LPM5PM8BV06AB21094LPM5PM8L039U98,U67U74,U81U85,U92040104000892TAP9
 519         CONBCK MLC   LITCNT,HOLD                                               7  1499  M ?76 B95            90
 520                MLC   SWADDR&X2,ADDR                                            7  1506  M PM8 635            90
 521                B     MODAD                                                     4  1513  B Q12                90
 522         P4SK2  MLC   RESULT-1,SWADDR&X2                                        7  1517  M C02 PM8            90
 523                A     LITCNT,X3                                                 7  1524  A ?76 099            90
 524                MLC   LITCNT,X1                                         )))     7  1531  M ?76 089            90
M?76B95MPM8635BQ12MC02PM8A?76099M?76089L039V37,V06V13,V17V24,V31040104000902TAP9
 525                MLC   @M@,P4SK2&14                                              7  1538  M B43 V31            91
 526                BCE   DSA,OPER-1,A                                              8  1545  B W49 ?03 A          91
 527                BW    SETLIT,RECORD&3                                           8  1553  V W60 R89 1          91
 528                BCE   NUMALF,PARAMT,@                                           8  1561  B W30 ?81 @          91
 529                BWZ   NUMALF,PARAMT,2                                           8  1569  V W30 ?81 2          91
MB43V31BW49?03AVW60R891BW30?81@VW30?812L039V76,V45V53,V61V69,040040104000912TAP9
 530                BCE   *&20,PARAMT,&                                             8  1577  B W04 ?81 &          92
 531                BCE   *&12,PARAMT,-                                             8  1585  B W04 ?81 -          92
 532                MLC   AOPND,100&X3                                              7  1593  M A53 1?0            92
 533                B     NUMOUT                                                    4  1600  B X05                92
 534                BWZ   *&12,PARAMT&1,2                                           8  1604  V W23 ?82 2          92
BW04?81&BW04?81-MA531?0BX05VW23?822    L035W11,V85V93,W00W04,040040104000922TAP9
 535                MLC   @  @,PARAMT&19                                            7  1612  M B45 A00            93
 536                B     *-29                                                      4  1619  B V93                93
 537                MZ    PARAMT,PARAMT&X1                                          7  1623  Y ?81 ?Y1            93
 538         NUMALF SW    PARAMT&1                                                  4  1630  , ?82                93
 539                MLC   PARAMT&X1,100&X3                                          7  1634  M ?Y1 1?0            93
 540                CW    PARAMT&1                                                  4  1641  ) ?82                93
 541                B     NUMOUT                                                    4  1645  B X05                93
 542         *
MB45A00BV93Y?81?Y1,?82M?Y11?0)?82BX05  L037W48,W19W23,W30W34,W41W45104000932TAP9
 543         DSA    MLC   AOPND,100&X3                                              7  1649  M A53 1?0            94
 544                B     NUMOUT                                                    4  1656  B X05                94
 545         *
 546         SETLIT SW    PARAMT&30,LITCTL                                          7  1660  , A11 C25            94
 547                BCE   *&8,RECORD&20,#                                           8  1667  B W82 ?06 #          94
 548                MLC   PARAMT&29&X1,100&X3                                       7  1675  M A/0 1?0            94
 549                CW    PARAMT&30                                                 4  1682  ) A11                94
MA531?0BX05,A11C25BW82?06#MA/01?0)A11  L037W85,W56W60,W67W75,W82040104000942TAP9
 550                BCE   *&5,RECORD&20,@                                           8  1686  B W98 ?06 @          95
 551                B     NUMOUT                                                    4  1694  B X05                95
 552                MLC   @@@,RECORD&21&X1                                          7  1698  M B46 ?|7            95
 553         NUMOUT CS    332                                                       4  1705  / 332                95
 554                CS                                                              1  1709  /                    95
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                         1401 TWO-TAPE AUTOCODER - PHASE 9 - LIST & CONDS RBR       2TAP9              PAGE   11

 SEQ PG LIN  LABEL  OP    OPERANDS                                         SFX CT  LOCN  INSTRUCTION TYPE  CARD
 555                BW    CONST,TSTLNG&9     SUPPRESS PRINTING ON 1ST HALF       8  1710  V T05 J67 1         95
BW98?06@BX05MB46?|7/332/VT05J671       L032X17,W94W98,X05X09,X10040104000952TAP9
 556                BW    *&5,SPLIT&5        RESTORE LONG CONSTANT FOR PRINT     8  1718  V X30 K38 1         96
 557                B     NOTLNG                                                 4  1726  B X41               96
 558                CW    SPLIT&5                                                4  1730  ) K38               96
 559                A     @0039@,LITCNT                                          7  1734  A B19 ?76           96
 560         NOTLNG MCS   LITCNT,284                                             7  1741  Z ?76 284           96
 561                SW    AOPND-2                                                4  1748  , A51               96
VX30K381BX41)K38AB19?76Z?76284,A51     L034X51,X26X30,X34X41,X48040104000962TAP9
 562                MLC   AOPND,296                                              7  1752  M A53 296           97
 563                SW    PARAMT&60                                              4  1759  , A41               97
 564                MLC   PARAMT&64,309                                          7  1763  M A45 309           97
 565                BCE   PRINT1,PARAMT&60,M                                     8  1770  B Y43 A41 M         97
 566         *
 567         PRINT  MCS   CARDCT,314                                             7  1778  Z C17 314           97
MA53296,A41MA45309BY43A41MZC17314      L033X84,X59X63,X70X78,040040104000972TAP9
 568                MLC   LOCATN,ADDR                                      )))   7  1785  M ?80 635           98
 569                B     DECOD                                                  4  1792  B 497               98
 570                MLC   @Z@,PRINT                                              7  1796  M B47 X78           98
 571                LCA   EDIT,290                                               7  1803  L P45 290           98
 572                MCE   WORK,290                                               7  1810  E 640 290           98
 573                C     WORK,@00080@                                           7  1817  C 640 B52           98
M?80635B497MB47X78LP45290E640290C640B52L039Y23,X92X96,Y03Y10,Y17040104000982TAP9
 574                BL    PRINT1                                                 5  1824  B Y43 T             99
 575                MLC   @ADDR@,319                                             7  1829  M B56 319           99
 576                A     @1@,ERRCNT                                             7  1836  A B20 C21           99
 577         *
 578         PRINT1 MLC   LABEL,219                                              7  1843  M R96 219           99
 579                SW    214,221                                                7  1850  , 214 221           99
BY43TMB56319AB20C21MR96219,214221      L033Y56,Y29Y36,Y43Y50,040040104000992TAP9
 580                SW    227,201                                                7  1857  , 227 201          100
 581                CW    RECORD&3,RECORD&4                                      7  1864  ) R89 R90          100
 582                MLC   OPER&1,225                                             7  1871  M ?05 225          100
 583                MLC   RECORD&71,278                                          7  1878  M ?57 278          100
 584                SW    RECORD,RECORD&2                                        7  1885  , R86 R88          100
 585                SW    RECORD&75                                              4  1892  , ?61              100
,227201)R89R90M?05225M?57278,R86R88,?61L039Y95,Y64Y71,Y78Y85,Y92040104001002TAP9
 586                MCS   RECORD&79,204                                          7  1896  Z ?65 204          101
 587                MCS   RECORD&1,207                                           7  1903  Z R87 207          101
 588                MLC   RECORD&4,211                                           7  1910  M R90 211          101
 589                BW    *&5,ERRPOS                                             8  1917  V Z29 ?72 1        101
 590                B     *&19                                                   4  1925  B Z47              101
Z?65204ZR87207MR90211VZ29?721BZ47      L033Z28,Z03Z10,Z17Z25,040040104001012TAP9
 591                MLC   @INVALID@,322                                          7  1929  M B63 322          102
 592                A     @1@,ERRCNT                                             7  1936  A B20 C21          102
 593                B     TSTOVF                                                 4  1943  B Z99              102
 594                BW    *&5,ERRPOS-1                                           8  1947  V Z59 ?71 1        102
 595                B     *&15                                                   4  1955  B Z73              102
 596                MLC   @OPER@,325                                             7  1959  M B67 325          102
MB63322AB20C21BZ99VZ59?711BZ73MB67325  L037Z65,Z36Z43,Z47Z55,Z59040104001022TAP9
 597                A     @1@,ERRCNT                                             7  1966  A B20 C21          103
 598                BW    *&5,ERRPOS-2                                           8  1973  V Z85 ?70 1        103
 599                B     *&15                                                   4  1981  B Z99              103
 600                MLC   @SYM@,330                                              7  1985  M B70 330          103
 601                A     @1@,ERRCNT                                             7  1992  A B20 C21          103
 602         TSTOVF W                                                            1  1999  2                  103
 603                BCV   OVFLO                                                  5  2000  B C27 @            103
AB20C21VZ85?701BZ99MB70330AB20C212BC27@L039!04,Z73Z81,Z85Z92,Z99!00104001032TAP9
 604                B     GETOBJ                                                 4  2005  B 719              104
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                         1401 TWO-TAPE AUTOCODER - PHASE 9 - LIST & CONDS RBR       2TAP9              PAGE   12

 SEQ PG LIN  LABEL  OP    OPERANDS                                          SFX CT  LOCN  INSTRUCTION TYPE  CARD
 605         *
 606         NOWM   BCE   *&5,COUNT,1                                             8  2009  B !21 A59 1        104
 607                B     CONBCK                                                  4  2017  B U99              104
 608                MLC   LOCATN,ADDR                                       )))   7  2021  M ?80 635          104
 609                ZS    LITCNT,HOLD                                             7  2028  ! ?76 B95          104
 610                A     @1@,HOLD                                                7  2035  A B20 B95          104
B719B!21A591BU99M?80635!?76B95AB20B95  L037!41,!09!17,!21!28,!35040104001042TAP9
 611                B     MODAD                                                   4  2042  B Q12              105
 612                MLC   RESULT-1,SWADDR&6                                       7  2046  M C02 P54          105
 613                MLC   SWADDR&6,SWADDR&3                                       7  2053  M P54 P51          105
 614                MLC                                                           1  2060  M                  105
 615                MLC   SWADDR&6,ADDR                                           7  2061  M P54 635          105
 616                MLC   LITCNT,HOLD                                             7  2068  M ?76 B95          105
 617                B     MODAD                                                   4  2075  B Q12              105
BQ12MC02P54MP54P51MMP54635M?76B95BQ12  L037!78,!46!53,!60!61,!68!75104001052TAP9
 618                MLC   RESULT-1,SWADDR&9                                       7  2079  M C02 P57          106
 619                MLC   @3@,COUNT                                               7  2086  M B21 A59          106
 620                MLC   @9@,X2                                                  7  2093  M B71 094          106
 621                MLC   @)@,147                                                 7  2100  M B72 147          106
 622                B     P4SK2&7                                                 4  2107  B V24              106
 623         NOWM1  MLC   LOCATN,ADDR                                             7  2111  M ?80 635          106
MC02P57MB21A59MB71094MB72147BV24M?80635L039J17,!86!93,J00J07,J11040104001062TAP9
 624                ZA    PARAMT&69,HOLD                                          7  2118  ? A50 B95          107
 625                B     MODAD                                                   4  2125  B Q12              107
 626                MLC   RESULT-1,LOCATN                                         7  2129  M C02 ?80          107
 627                SW    PARAMT&40                                               4  2136  , A21              107
 628                MLC   @0039@,X1                                               7  2140  M B19 089          107
 629                MLC   @A@,P4SK2&14                                            7  2147  M B73 V31          107
?A50B95BQ12MC02?80,A21MB19089MB73V31   L036J53,J25J29,J36J40,J47040104001072TAP9
 630                B     NOWM&12                                                 4  2154  B !21              108
 631         *                  TEST FOR CONSTANTS LONGER THAN 39 CHARS
 632         TSTLNG BW    REST,TSTLNG&9                                           8  2158  V K98 J67 1        108
 633                BW    ERRLIT,ERRPOS                                           8  2166  V K22 ?72 1        108
 634                BW    SPLIT,REST&5                                            8  2174  V K33 L03 1        108
 635                C     LITCNT,@040@                                            7  2182  C ?76 B76          108
B!21VK98J671VK22?721VK33L031C?76B76    L035J88,J58J66,J74J82,040040104001082TAP9
 636                BH    CDFULL             SHORT CONSTANT                       5  2189  B M88 U            109
 637                C     LITCNT,@53@                                             7  2194  C ?76 B78          109
 638                BH    *&9                                                     5  2201  B K14 U            109
 639                SW    ERRPOS                                                  4  2206  , ?72              109
 640                B     CDFULL                                                  4  2210  B M88              109
 641                SW    REST&5                                                  4  2214  , L03              109
 642                B     CDFULL             RELEASE PREVIOUS CARD                4  2218  B M88              109
BM88UC?76B78BK14U,?72BM88,L03BM88      L033K21,J94K01,K06K10,K14K18104001092TAP9
 643         ERRLIT MLC   @N@,PRINT                                               7  2222  M B79 X78          110
 644                B     NUMOUT                                                  4  2229  B X05              110
 645         *                  SET UP FIRST 39 POSITIONS OF LONG CONSTANT
 646         SPLIT  CW    REST&5                                                  4  2233  ) L03              110
 647                LCA   LITCNT,PARAMT&69   SAVE ORIGINAL LENGTH                 7  2237  L ?76 A50          110
 648                MLC   @0039@,LITCNT      SET LENGTH TO 39                     7  2244  M B19 ?76          110
 649                MLC   @0039@,POSCNT                                           7  2251  M B19 A70          110
MB79X78BX05)L03L?76A50MB19?76MB19A70   L036K57,K29K33,K37K44,K51040104001102TAP9
 650                S     @0039@,PARAMT&69   FIGURE REMAINDER                     7  2258  S B19 A50          111
 651                MLC   LOCATN,ADDR                                             7  2265  M ?80 635          111
 652                ZS    PARAMT&69,HOLD                                          7  2272  ! A50 B95          111
 653                B     MODAD                                                   4  2279  B Q12              111
 654                MLC   RESULT-1,LOCATN                                         7  2283  M C02 ?80          111
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 SEQ PG LIN  LABEL  OP    OPERANDS                                             SFX CT  LOCN  INSTRUCTION TYPE  CARD
 655               SW    TSTLNG&9                                                   4  2290  , J67              111
SB19A50M?80635!A50B95BQ12MC02?80,J67   L036K93,K65K72,K79K83,K90040104001112TAP9
 656               B     FSTCON-34                                                  4  2294  B U07              112
 657         *                       PUNCH THE FIRST 39 POSITIONS
 658         REST   CW    TSTLNG&9                                                   4  2298  ) J67              112
 659               MLC   PARAMT&69,LITCNT                                           7  2302  M A50 ?76          112
 660               MZ    @ @,LITCNT                                                 7  2309  Y B80 ?76          112
 661               SW    SPLIT&5                                                    4  2316  , K38              112
 662               B     CDFULL                                                     4  2320  B M88              112
 663         *
 664         PRINT2 BCV   OVFLO                                                      5  2324  B C27 @            112
BU07)J67MA50?76YB80?76,K38BM88BC27@    L035L28,K98L02,L09L16,L20L24104001122TAP9
 665               CS    332                                                        4  2329  / 332              113
 666               CS                                                               1  2333  /                  113
 667               C     OPER,@EQU @                                                7  2334  C ?04 B84          113
 668               BE    CTL                                                        5  2341  B M25 S            113
 669               BW    *&9,FSTIME                                                 8  2346  V L62 C22 1        113
 670               SW    FSTIME                                                     4  2354  , C22              113
 671               B     CDFULL                                                     4  2358  B M88              113
/332/C?04B84BM25SVL62C221,C22BM88      L033L61,L33L34,L41L46,L54L58104001132TAP9
 672               CW    FSTIME                                                     4  2362  ) C22              114
 673               SW    305                                                        4  2366  , 305              114
 674               BCE   *&5,PARAMT&60,G                                            8  2370  B L82 A41 G        114
 675               B     *&8                                                        4  2378  B L89              114
 676               MLC   PARAMT&64,309                                              7  2382  M A45 309          114
 677               MLC   LOCATN,ADDR                                                7  2389  M ?80 635          114
 678               B     DECOD                                                      4  2396  B 497              114
)C22,305BL82A41GBL89MA45309M?80635B497 L038L99,L66L70,L78L82,L89L96104001142TAP9
 679               LCA   EDIT,297                                                   7  2400  L P45 297          115
 680               MCE   WORK,297                                                   7  2407  E 640 297          115
 681               MLC   @L@,140                                                    7  2414  M B85 140          115
 682               B     PRINT1                                                     4  2421  B Y43              115
 683         *
 684         CTL    MLC   LOCATN,ADDR                                                7  2425  M ?80 635          115
LP45297E640297MB85140BY43M?80635       L032M31,M07M14,M21M25,040040104001152TAP9
 685               BCE   CDFULL-11,LOCATN-2,%                                       8  2432  B M77 ?78 %        116
 686               B     DECOD                                                      4  2440  B 497              116
 687               LCA   EDIT,290                                                   7  2444  L P45 290          116
 688               MCE   WORK,290                                                   7  2451  E 640 290          116
 689               BWZ   PRINT1,LOCATN-1,2                                          8  2458  V Y43 ?79 2        116
BM77?78%B497LP45290E640290VY43?792     L034M65,M40M44,M51M58,040040104001162TAP9
 690               MLC   @X@,292                                                    7  2466  M B86 292          117
 691               B     PRINT1                                                     4  2473  B Y43              117
 692               MLC   LOCATN,290                                                 7  2477  M ?80 290          117
 693               B     PRINT1                                                     4  2484  B Y43              117
 694         *
 695         CDFULL CW    ISOLAT,LITCTL                                              7  2488  ) C24 C25          117
 696               BCE   AGAIN,COUNT,0                                              8  2495  B 756 A59 0        117
MB86292BY43M?80290BY43)C24C25B756A590  L037N02,M73M77,M84M88,M95040104001172TAP9
 697               MLC   SWADDR&X2,ADDR                                             7  2503  M PM8 635          118
 698               MLC   @040@,SWADDR&X2                                            7  2510  M B76 PM8          118
 699               MLC   SWADDR&18,167                                              7  2517  M P66 167          118
 700               MLC                                                              1  2524  M                  118
 701               MLC   SWADDR&12,160                                              7  2525  M P60 160          118
 702               MLC                                                              1  2532  M                  118
 703               MLC   SWADDR&6,153                                               7  2533  M P54 153          118
MPM8635MB76PM8MP66167MMP60160MMP54153  L037N39,N10N17,N24N25,N32N33104001182TAP9
 704               MLC                                                              1  2540  M                  119
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                            1401 TWO-TAPE AUTOCODER - PHASE 9 - LIST & CONDS RBR       2TAP9              PAGE   14

 SEQ PG LIN  LABEL  OP    OPERANDS                                            SFX CT  LOCN  INSTRUCTION TYPE  CARD
 705                ZS    @1@,HOLD                                                 7  2541  ! B20 B95           119
 706                B     MODAD                                                    4  2548  B Q12               119
 707         P4SK3  MLC   RESULT-1,146                                             7  2552  M C02 146           119
 708                SW    141                                                      4  2559  , 141               119
 709                MLC   SPACE,143                                                7  2563  M B15 143           119
 710                MLC   CARDCT,175                                               7  2570  M C17 175           119
M!B20B95BQ12MC02146,141MB15143MC17175  L037N76,N41N48,N52N59,N63N70104001192TAP9
 711                A     @1@,CARDCT                                               7  2577  A B20 C17           120
 712                P                                                              1  2584  4                   120
 713                CS    139                                                      4  2585  / 139               120
 714                MLC   RESULT-1,ADDR                                            7  2589  M C02 635           120
 715                B     DECOD                                                    4  2596  B 497               120
 716                C     WORK,@04000@                                             7  2600  C 640 B91           120
 717                BH    *&5                                                      5  2607  B O16 U             120
AB20C174/139MC02635B497C640B91BO16U    L035O11,N84N85,N89N96,O00O07104001202TAP9
 718                SW    EXCEED                                                   4  2612  , C26               121
 719                LCA   @040@,SWADDR&18                                          7  2616  L B76 P66           121
 720                LCA   SWADDR&18,SWADDR&15                                      7  2623  L P66 P63           121
 721                CHAIN 5                                                                            MACRO
 722                LCA                                                            1  2630  L          GEN     121
 723                LCA                                                            1  2631  L          GEN     121
 724                LCA                                                            1  2632  L          GEN     121
 725                LCA                                                            1  2633  L          GEN     121
,C26LB76P66LP66P63LLLL                 L022O33,O16O23,O30O31,O32O33104001212TAP9
 726                LCA                                                            1  2634  L          GEN     122
 727                LCA   SETUP-1,180                                              7  2635  L Q10 180           122
 728                B     REINIT                                                   4  2642  B 666               122
 729         *
 730         COMMNT SW    RECORD&5                                                 4  2646  , R91               122
 731                BCV   OVFLO                                                    5  2650  B C27 @             122
 732                CS    0332                                                     4  2655  / 332               122
 733                CS                                                             1  2659  /                   122
LLQ10180B666,R91BC27@/332/             L026O59,O35O42,O46O50,O55O59104001222TAP9
 734                CW    RECORD&15,RECORD&20                                      7  2660  ) ?01 ?06           123
 735                MLC   RECORD&71,280                                            7  2667  M ?57 280           123
 736                SW    RECORD,RECORD&2                                          7  2674  , R86 R88           123
 737                MCS   RECORD&1,207                                             7  2681  Z R87 207           123
 738                MLC   RECORD&4,211                                             7  2688  M R90 211           123
)?01?06M?57280,R86R88ZR87207MR90211    L035O94,O67O74,O81O88,040040104001232TAP9
 739                MCS   RECORD&79,204                                            7  2695  Z ?65 204           124
 740                BCV   OVFLO                                                    5  2702  B C27 @             124
 741                W     GETOBJ                                                   4  2707  2 719               124
 742         *
 743         DS     BW    *&9,FSTIME                                               8  2711  V P27 C22 1         124
 744                SW    FSTIME                                                   4  2719  , C22               124
 745                B     CDFULL                                                   4  2723  B M88               124
 746                CW    FSTIME                                                   4  2727  ) C22               124
Z?65204BC27@2719VP27C221,C22BM88)C22   L036P30,P02P07,P11P19,P23P27104001242TAP9
 747                CS    332                                                      4  2731  / 332               125
 748                CS                                                             1  2735  /                   125
 749                B     PRINT&7                                                  4  2736  B X85               125
 750         *         ***  CONSTANTS  ***
 751         EDIT   DCW   @ 0    @                                                 6  2745                      125
 752         SWADDR DCW   @040@                                                    3  2748                      125
 753                DCW   @040@                                                    3  2751                      125
 754                DCW   @040@                                                    3  2754                      125
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                         1401 TWO-TAPE AUTOCODER - PHASE 9 - LIST & CONDS RBR       2TAP9              PAGE   15

 SEQ PG LIN  LABEL  OP    OPERANDS                                           SFX CT  LOCN  INSTRUCTION TYPE  CARD
/332/BX85 0    040040040             L024P54,P35P36,P40P46,P49P52104001252TAP9
 755                DCW   @040@                                                   3  2757                     126
 756                DCW   @040@                                                   3  2760                     126
 757                DCW   @040@                                                   3  2763                     126
 758                DCW   @040@                                                   3  2766                     126
 759                DCW   @040@                                                   3  2769                     126
040040040040040                      L015P69,P58P61,P64P67,040040104001262TAP9
L      ,040040,040040,0400401040     L039Q08,040040,040040,040040104001272TAP9
 760         SETUP  DCW   @L      ,040040,040040,0400401040          |@          42  2811                     128
 761         *                      COPY OF ROUTINE TO MODIFY MACHINE ADDRESS
 762         *                           BY A PLUS OR MINUS ADJUSTMENT VALUE
 763         *                         * ADDRESS PLACED AT ADDR
 764         *                         * ADJUSTMENT VALUE TAKEN FROM PARAMT&10
 765         *                         * MODIFIED ADDRESS PLACED AT RESULT-1
 766         MODAD  SBR   MDEXIT&3                                                4  2812  H R17              128
 767                BAV   *&1                                                     5  2816  B Q21 Z            128
 768                CW    NEG1#1                                                  4  2821  ) B92              128
 769                BM    DECR1,HOLD#3                                            8  2825  V R52 B95 K        128
  |HR17BQ21Z)B92VR52B95K             L024Q32)Q09Q09,Q12Q16,Q21Q25104001282TAP9
 770         SETIN  NOP   @?0@                                                    4  2833  N B97              129
 771                ORG   SETIN                                                            2833
NB97                                 L004Q36,040040,040040,040040104001292TAP9
 772                MLC   ADDR,RESULT-1                                           7  2833  M 635 C02          130
 773                MZ    @ @,RESULT-1                                            7  2840  Y B80 C02          130
 774                A     HOLD,RESULT-1                                           7  2847  A B95 C02          130
 775                MZ    ADDR,RESULT-1                                           7  2854  Y 635 C02          130
 776                MZ    RESULT-3,YYY                                            7  2861  Y C00 R51          130
M635C02YB80C02AB95C02Y635C02YC00R51  L035Q67,Q40Q47,Q54Q61,040040104001302TAP9
 777                MZ    ADDR-2,XXX                                              7  2868  Y 633 R50          131
 778                BW    MDEXIT&4,NEG1                                           8  2875  V R18 B92 1        131
 779                C     XXX,YYY                                                 7  2883  C R50 R51          131
 780                BH    *&5                                                     5  2890  B Q99 U            131
 781                B     MDEXIT                                                  4  2895  B R14              131
 782                SW    RESULT-1                                                4  2899  , C02              131
Y633R50VR18B921CR50R51BQ99UBR14,C02  L035R02,Q75Q83,Q90Q95,Q99040104001312TAP9
 783                A     @|0@,RESULT#4                                           7  2903  A B99 C03          132
 784                CW    RESULT-1                                                4  2910  ) C02              132
 785         MDEXIT B     000                                                     4  2914  B 000              132
 786                BAV   MDEXIT                                                  5  2918  B R14 Z            132
 787                C     XXX,YYY                                                 7  2923  C R50 R51          132
 788                BH    MDEXIT                                                  5  2930  B R14 U            132
 789                SW    RESULT-1                                                4  2935  , C02              132
AB99C03)C02B000BR14ZCR50R51BR14U,C02  L036R38,R10R14,R18R23,R30R35104001322TAP9
 790                A     @?0@,RESULT                                             7  2939  A B97 C03          133
 791                B     MDEXIT-4                                                4  2946  B R10              133
 792         XXX    DCW   @2@                                                     1  2950                     133
 793         YYY    DCW   @2@                                                     1  2951                     133
 794         DECR1  SW    NEG1                                                    4  2952  , B92              133
 795                A     @999@,HOLD                                              7  2956  A C06 B95          133
 796                A     @?01@,HOLD                                              7  2963  A C09 B95          133
AB97C03BR1022,B92AC06B95AC09B95      L031R69,R46R50,R51R52,R56R63104001332TAP9
 797                B     SETIN                                                   4  2970  B Q33              134
 798         MODZR  MLC   HOLD,RESULT-1                                           7  2974  M B95 C02          134
 799                B     MDEXIT                                                  4  2981  B R14              134
 800                H                                                             1  2985  .                  134
 801         *
 802         *                      INPUT RECORD AREA
 803         *
 804 99      RECORD DA    1X80,|                                                     2986   3066              134
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                          1401 TWO-TAPE AUTOCODER - PHASE 9 - LIST & CONDS RBR       2TAP9              PAGE   16

 SEQ PG LIN  LABEL  OP    OPERANDS                                           SFX CT  LOCN  INSTRUCTION TYPE  CARD
 805         LABEL        11                                                         2996              SBFLD
 806         OPER         19                                                         3004              SBFLD
BQ33MB95C02BR14.                       L016R85,R74R81,R85R86,040040104001342TAP9
                    DC    @|@                                                     1  3066              RMARK  135
 807         PARTBL DA    1X90,|                                                     3067   3157              135
 808 99      AADDR        1,1                                                        3067              FIELD  135
 809 99      BADDR        2,2                                                        3068              FIELD  135
 810 99      ERRPOS       6                                                          3072              SBFLD
 811 99      ICOUNT       7,7                                                        3073              FIELD  135
|                                      L001?66)?66?66,?67?67,?68?73104001352TAP9
 812 99      LITCNT       8,10                                                       3076              FIELD  136
 813 99      ACTOP        11,11                                                      3077              FIELD  136
 814 99      LOCATN       12,14                                                      3080              FIELD  136
 815 99      PARAMT       15,15                                                      3081              FIELD  136
 816         AOPND        85,87                                                      3153              FIELD  136
 817         BOPND        88,90                                                      3156              FIELD  136
                                       L001001,?74?77,?78?81,A51A54104001362TAP9
                    DC    @|@                                                     1  3157              RMARK  137
 818         *
 819                ORG   RECORD&1                                                          2987
|                                      L001A57)A57A57,040040,040040104001372TAP9
 820         HSKPG  MLC   @0004@,CARDCT#4                                         7  2987  M C13 C17          138
 821                MLC   @0000@,ERRCNT#4                                         7  2994  M A66 C21          138
 822                CW    FSTIME#1,SUBNXT#1                                       7  3001  ) C22 C23          138
 823                CW    ISOLAT#1,LITCTL#1                                       7  3008  ) C24 C25          138
 824                CW    EXCEED#1                                                4  3015  ) C26              138
 825                CS    139                                                     4  3019  / 139              138
MC13C17MA66C21)C22C23)C24C25)C26/139   L036?22,R94?01,?08?15,?19040104001382TAP9
 826                CS    80                                                      4  3023  / 080              139
 827                SW    21                                                      4  3027  , 021              139
 828                B     HSKPG1                                                  4  3031  B 653              139
 829                H                                                             1  3035  .                  139
 830                LTORG PARTBL&91                                                         3158
/080,021B653.                          L013?35,?27?31,?35040,040040104001392TAP9
                    DCW   @0@                                                     1  3158              LIT    140
        377  COUNT        #01                                                     1  3159              AREA   140
                          @000@                                                   3  3162              LIT    140
                          @0000@                                                  4  3166              LIT    140
        381  POSCNT       #04                                                     4  3170              AREA   140
        382               @        @                                              8  3178              LIT    140
        382  ASSMBD       #08                                                     8  3186              AREA   140
0 0000000                              L029A86,A59A60,A63A67,A71A79104001402TAP9
                          @EX  @                                                  4  3190              LIT    141
                          @XFR @                                                  4  3194              LIT    141
                          @CTL @                                                  4  3198              LIT    141
                          @JOB @                                                  4  3202              LIT    141
                          @B@                                                     1  3203              LIT    141
                          @DS  @                                                  4  3207              LIT    141
                          @END @                                                  4  3211              LIT    141
EX  XFR CTL JOB BDS  END               L025B11,A91A95,A99B03,B04B08104001412TAP9
        433  SPACE        #04                                                     4  3215              AREA   142
                          @0039@                                                  4  3219              LIT    142
                          @1@                                                     1  3220              LIT    142
                          @3@                                                     1  3221              LIT    142
        482               @        @                                              8  3229              LIT    142
                          @DA  @                                                  4  3233              LIT    142
        497               @DC   @                                                 5  3238              LIT    142
    003913        DA  DC                 L027B38,B16B20,B21B22,B30B34104001422TAP9
                          @DC  @                                                  4  3242              LIT    143
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                         1401 TWO-TAPE AUTOCODER - PHASE 9 - LIST & CONDS RBR       2TAP9              PAGE   17

 SEQ PG LIN  LABEL  OP    OPERANDS                                           SFX CT  LOCN  INSTRUCTION TYPE  CARD
                          @M@                                                     1  3243              LIT    143
                          @  @                                                    2  3245              LIT    143
                          @@@                                                     1  3246              LIT    143
                          @Z@                                                     1  3247              LIT    143
        573               @00080@                                                 5  3252              LIT    143
                          @ADDR@                                                  4  3256              LIT    143
DC  M  @Z00080ADDR                    L018B56,B43B44,B46B47,B48B53104001432TAP9
        591               @INVALID@                                               7  3263              LIT    144
                          @OPER@                                                  4  3267              LIT    144
                          @SYM@                                                   3  3270              LIT    144
                          @9@                                                     1  3271              LIT    144
                          @)@                                                     1  3272              LIT    144
                          @A@                                                     1  3273              LIT    144
                          @040@                                                   3  3276              LIT    144
INVALIDOPERSYM9)A040                  L020B76,B64B68,B71B72,B73B74104001442TAP9
                          @53@                                                    2  3278              LIT    145
                          @N@                                                     1  3279              LIT    145
                          @ @                                                     1  3280              LIT    145
                          @EQU @                                                  4  3284              LIT    145
                          @L@                                                     1  3285              LIT    145
                          @X@                                                     1  3286              LIT    145
        716               @04000@                                                 5  3291              LIT    145
53N EQU LX04000                       L015B91,B79B80,B81B85,B86B87104001452TAP9
        768  NEG1         #01                                                     1  3292              AREA   146
        769  HOLD         #03                                                     3  3295              AREA   146
                          @?0@                                                    2  3297              LIT    146
                          @|0@                                                    2  3299              LIT    146
        783  RESULT       #04                                                     4  3303              AREA   146
                          @999@                                                   3  3306              LIT    146
                          @?01@                                                   3  3309              LIT    146
    ?0|0    999?01                    L018C09,B93B96,B98C00,C04C07104001462TAP9
                          @0004@                                                  4  3313              LIT    147
        820  CARDCT       #04                                                     4  3317              AREA   147
        821  ERRCNT       #04                                                     4  3321              AREA   147
        822  FSTIME       #01                                                     1  3322              AREA   147
        822  SUBNXT       #01                                                     1  3323              AREA   147
        823  ISOLAT       #01                                                     1  3324              AREA   147
        823  LITCTL       #01                                                     1  3325              AREA   147
0004                                  L016C25,C14C18,C22C23,C24C25104001472TAP9
        824  EXCEED       #01                                                     1  3326              AREA   148
 831         *
 832         *                       CALLING LINKAGE FOR PHASE 9 SUBROUTINES
 833         *                            ON SYSTEMS TAPE
 834         *
 835         *                       ***  PAGE OVERFLOW CALL  ***
 836         OVFLO  SBR   OVFEXT                                                  4  3327  H C40                148
 837                CC    1                                                       2  3331  F 1                  148
 838                B     GETOVF                                                  4  3333  B D63                148
 839         OVFOUT B     JOBACK                                                  4  3337  B 880                148
 840         OVFEXT EQU   *                                                          3340
 841                NOP   PAGENO#3                                                4  3341  N E16                148
 842         *
 843         *                       ***  DA HEADER CALL  ***
 844         DAOUT  BW    DAHDR,FSTIME                                            8  3345  V E30 C22 1          148
 HC40F1BD63B880NE16VE30C221           L027C52,C27C31,C33C37,C41C45104001482TAP9
 845                B     GETDA                                                   4  3353  B D55                149
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                         1401 TWO-TAPE AUTOCODER - PHASE 9 - LIST & CONDS RBR       2TAP9             PAGE   18

 SEQ PG LIN  LABEL  OP    OPERANDS                                          SFX CT  LOCN  INSTRUCTION TYPE  CARD
 846         *
 847         *                  ***  DA SUBSEQUENT ENTRY CALL  ***
 848         SUBDA  NOP   000,000,0                                              8  3357  N 000 000 0        149
 849                NOP   FSTIME                                                 4  3365  N C22              149
 850                BCE   GETSUB,OPER-3,                                         8  3369  B D47 ?01          149
 851                A     @1@,COUNT                                              7  3377  A E17 A59          149
 852         DADONE CW    SUBNXT,FSTIME                                          7  3384  ) C23 C22          149
BD55N0000000NC22BD47?01 AE17A59)C23C22 L038C90,C57C65,C69C77,C84040104001492TAP9
 853                BCE   REINIT,COUNT,0                                         8  3391  B 666 A59 0        150
 854                B     P4SK3&18                                               4  3399  B N70              150
 855         *
 856         *                  ***  EX AND XFR CALL  ***
 857         EXECUT BW    SETEXC,FSTIME                                          8  3403  V E38 C22 1        150
 858                B     GETEX                                                  4  3411  B D39              150
 859         *
 860         *                  ***  END CARD - END OF JOB CALL  ***
 861         END    BW    END2,FSTIME                                            8  3415  V E26 C22 1        150
 862                SW    FSTIME                                                 4  3423  , C22              150
B666A590BN70VE38C221BD39VE26C221,C22   L036D26,C99D03,D11D15,D23040104001502TAP9
 863                B     GETEND                                                 4  3427  B D31              151
 864         *
 865         *
 866         *                  ROUTINE TO ORDER THE DESIRED SUBROUTINE
 867         GETEND RTW   1,OVRLAY                                               8  3431  L %U1 E18 R        151
 868         GETEX  RTW   1,OVRLAY                                               8  3439  L %U1 E18 R        151
 869         GETSUB RTW   1,OVRLAY                                               8  3447  L %U1 E18 R        151
 870         GETDA  RTW   1,OVRLAY                                               8  3455  L %U1 E18 R        151
BD31L%U1E18RL%U1E18RL%U1E18RL%U1E18R   L036D62,D31D39,D47D55,040040104001512TAP9
 871         GETOVF RTW   1,OVRLAY                                               8  3463  L %U1 E18 R        152
 872                BER   TPERR                                                  5  3471  B 363 L            152
 873                BEF   *&1                                                    5  3476  B D81 K            152
 874                B     SUBRT                                                  4  3481  B E22              152
 875         *
 876         *                  ROUTINE TO REPOSITION SYSTEMS TAPE AFTER
 877         *                       SUBROUTINE IS FINISHED
 878         BSP5   BSP   1                                                      5  3485  U %U1 B            152
 879         BSP4   BSP   1                                                      5  3490  U %U1 B            152
 880         BSP3   BSP   1                                                      5  3495  U %U1 B            152
L%U1E18RB363LBD81KBE22U%U1BU%U1BU%U1B  L037D99,D71D76,D81D85,D90D95104001522TAP9
 881         BSP2   BSP   1                                                      5  3500  U %U1 B            153
 882         BSP1   BSP   1                                                      5  3505  U %U1 B            153
 883                B     OVRLAY             EXIT FROM SUBRT ITS FIRST INSTR     4  3510  B E18              153
 884         *
 885                LTORG *                                                            3514
        841  PAGENO DCW   #03                                                    3  3516             AREA   153
                          @1@                                                    1  3517             LIT    153
 886         *
 887         *                  *****  COMMON AREA FOR SUBROUTINES  *****
 888         *
 889         OVRLAY H                                                            1  3518  .                  153
 890         *
U%U1BU%U1BBE18   1.                    L019E18,E05E10,E14E17,E18040104001532TAP9
 891         3998   DCW   @}@                                                    1  3998                     154
 892         *
 893                ORG   3975                                                         3975
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                              1401 TWO-TAPE AUTOCODER - PHASE 9 - LIST & CONDS RBR       2TAP9              PAGE   19

 SEQ PG LIN  LABEL  OP    OPERANDS                                            SFX CT  LOCN  INSTRUCTION TYPE  CARD
}                                         L001I98,040040,040040,040040104001542TAP9
 894         SETXX  SW    AOPND-12                                                 4  3975  , A41              155
 895                MLC   ACTOP,ASSMBD-7                                           7  3979  M ?77 A79          155
 896                B     P4SK1&21                                                 4  3986  B |84              155
,A41M?77A79B|84                           L015I89,I79I86,040040,040040104001552TAP9
                                          N000000,040040,040040,040040B16701562TAP9
,015022)024056,029036,040047,0540611001,001008B001     ,001008B001     01572TAP9
,068072)063067/061039                                       ,001001104001582TAP9
 897                EX    SYSTEM                                                        B 167              156
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                         PHASE 9 PAGE OVERFLOW SUBROUTINE - TAPE RECORD            2TAP9            PAGE   20

 SEQ PG LIN  LABEL  OP    OPERANDS                                          SFX CT  LOCN  INSTRUCTION TYPE  CARD
 898                JOB   PHASE 9 PAGE OVERFLOW SUBROUTINE - TAPE RECORD
 899         *
 900         *                  OVERLAY SYSTEMS TAPE CONTROL TO WRITE FROM
 901         *                       COMMON OVERLAY AREA FOR SUBROUTINES
 902                ORG   SYSTEM                                                           0167
 903                WTW   1,OVRLAY                                                  8  0167  L %U1 E18 W        159
 904         *
 905                ORG   OVRLAY                                                           3518
L%U1E18W                             L008174,040040,040040,040040104001592TAP9
 906                B     OVFOUT                                                    4  3518  B C37              160
 907         SUBRT  CS    332               FIRST INSTRUCTION OF SUBRT              4  3522  / 332              160
 908                CS                                                              1  3526  /                  160
 909                SW    21                                                        4  3527  , 021              160
 910                MLC   HEADNG,278                                                7  3531  M 072 278          160
 911                SW    286                                                       4  3538  , 286              160
 912                MLC   SETUP-1,290                                               7  3542  M Q10 290          160
BC37/332/,021M072278,286MQ10290      L031E48,E22E26,E27E31,E38E42104001602TAP9
 913                MLC   @PAGE@,307                                                7  3549  M F73 307          161
 914                A     @1@,PAGENO                                                7  3556  A F74 E16          161
 915                MCS   PAGENO,314                                                7  3563  Z E16 314          161
 916                CC    T                                                         2  3570  F T                161
 917                W                                                               1  3572  2                  161
 918                CS    332                                                       4  3573  / 332              161
 919                CS                                                              1  3577  /                  161
MF73307AF74E16ZE16314FT2/332/        L029E77,E56E63,E70E72,E73E77104001612TAP9
 920                LCA   LEFT,234                                                  7  3578  L F37 234          162
 921                LCA   RIGHT,314                                                 7  3585  L F69 314          162
 922                CC    S                                                         2  3592  F S                162
 923                W                                                               1  3594  2                  162
 924                CS    332                                                       4  3595  / 332              162
 925                CS                                                              1  3599  /                  162
 926                B     BSP1                                                      4  3600  B E05              162
 927         HEADNG EQU   72                                                           0072
LF37234LF69314FS2/332/BE05           L026F03,E85E92,E94E95,E99F00104001622TAP9
 928         LEFT   DCW   @ SEQ PG LIN  LABEL  OP    OPERANDS@                     34  3637                     163
 SEQ PG LIN  LABEL  OP    OPERANDS     L034F37,040040,040040,040040104001632TAP9
 929         RIGHT  DCW   @CT  LOCN  INSTRUCTION TYPE  CARD@                       32  3669                     164
 930                LTORG *                                                                3670
                    DCW   @PAGE@                                                    4  3673             LIT    164
                          @1@                                                       1  3674             LIT    164
 931                ORG   GM1                                                              3968
 932         *
CT  LOCN  INSTRUCTION TYPE  CARDPAGE1  L037F74,F70F74,040040,040040104001642TAP9
 933                DCW   @}@               GROUP MARK - SUBROUTINE HIGH LOC        1  3968                     165
 934         *
}                                    L001I68,040040,040040,040040104001652TAP9
                                     N000000,040040,040040,040040B16701662TAP9
,015022)024056,029036,040047,0540611001,001008B001     ,001008B001     01672TAP9
,068072)063067/061039                                    ,001001104001682TAP9
 935                XFR   SYSTEM                                                          B 167              166
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                        PHASE 9 DA HEADER SUBROUTINE - TAPE RECORD                 2TAP9              PAGE   21

 SEQ PG LIN  LABEL  OP    OPERANDS                                        SFX CT  LOCN  INSTRUCTION TYPE  CARD
 936                JOB   PHASE 9 DA HEADER SUBROUTINE - TAPE RECORD
 937         *
 938                ORG   OVRLAY                                                         3518
 939                B     PRINT1                                               4  3518  B Y43              169
 940         *
 941                SW    FSTIME                                               4  3522  , C22              169
 942                B     CDFULL                                               4  3526  B M88              169
 943         DAHDR  CS    332                                                  4  3530  / 332              169
 944                CS                                                         1  3534  /                  169
 945                CW    FSTIME                                               4  3535  ) C22              169
 946                MLC   LOCATN,ADDR                                          7  3539  M ?80 635          169
BY43,C22BM88/332/)C22M?80635           L028E45,E22E26,E30E34,E35E39104001692TAP9
 947                B     DECOD                                                4  3546  B 497              170
 948                LCA   EDIT,290                                             7  3550  L P45 290          170
 949                MCE   WORK,290                                             7  3557  E 640 290          170
 950                LCA   LOADXX,146                                           7  3564  L G57 146          170
 951                LCA   LOCATN,ADDR                                          7  3571  L ?80 635          170
 952                B     SETWM                                                4  3578  B G73              170
 953                NOP                                                        1  3582  N                  170
B497LP45290E640290LG57146L?80635BG73N  L037E82,E50E57,E64E71,E78E82104001702TAP9
 954                NOP                                                        1  3583  N                  171
 955                NOP                                                        1  3584  N                  171
 956                MLC   LITCNT,ADDR                                          7  3585  M ?76 635          171
 957                B     DECOD                                                4  3592  B 497              171
 958                A     290,WORK                                             7  3596  A 290 640          171
 959                S     PARAMT&67,WORK                                       7  3603  S A48 640          171
 960                S     @1@,WORK                                             7  3610  S I59 640          171
NNM?76635B497A290640SA48640SI59640     L034F16,E84E85,E92E96,F03F10104001712TAP9
 961                MZ    @ @,WORK                                             7  3617  Y I60 640          172
 962                LCA   EDIT,297                                             7  3624  L P45 297          172
 963                MCE   WORK,297                                             7  3631  E 640 297          172
 964                MCS   CARDCT,314                                           7  3638  Z C17 314          172
 965                SW    SUBNXT                                               4  3645  , C23              172
 966                CW    ERRPOS-1,ERRPOS-2                                    7  3649  ) ?71 ?70          172
YI60640LP45297E640297ZC17314,C23)?71?70L039F55,F24F31,F38F45,F49040104001722TAP9
 967                MLC   @000@,TEMP                                           7  3656  M I63 I67          173
 968                MLC   PARAMT&9,TEMP                                        7  3663  M ?90 I67          173
 969                MLC   LOCATN,ADDR                                          7  3670  M ?80 635          173
 970                MLC   @000@,HOLD                                           7  3677  M I63 B95          173
 971                MLC   PARAMT&19,HOLD                                       7  3684  M A00 B95          173
MI63I67M?90I67M?80635MI63B95MA00B95    L035F90,F63F70,F77F84,040040104001732TAP9
 972                A     PARAMT&60,HOLD                                       7  3691  A A41 B95          174
 973         SUB    S     @1@,TEMP                                             7  3698  S I59 I67          174
 974                MZ    @ @,TEMP                                             7  3705  Y I60 I67          174
 975                C     @000@,TEMP                                           7  3712  C I63 I67          174
 976                BE    BSP2                                                 5  3719  B E00 S            174
 977                B     MODAD                                                4  3724  B Q12              174
AA41B95SI59I67YI60I67CI63I67BE00SBQ12  L037G27,F98G05,G12G19,G24040104001742TAP9
 978                MLC   RESULT-1,ADDR                                        7  3728  M C02 635          175
 979         DABACK B     SETWM                                                4  3735  B G73              175
 980                B     SUB                                                  4  3739  B F98              175
 981                DS    30                                                      3772
 982         *                          ROUTINE TO SET UP WORDMARKS FOR DA ENTRIES
MC02635BG73BF98                        L015G42,G35G39,040040,040040104001752TAP9
 983         SETWM  SBR   SWOUT&10                                             4  3773  H I53              176
 984                NOP   SW1,COUNT,0                                          8  3777  N H44 A59 0        176
 985                BCE   SW2,COUNT,0                                          8  3785  B H55 A59 0        176
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                          PHASE 9 DA HEADER SUBROUTINE - TAPE RECORD                 2TAP9              PAGE   22

 SEQ PG LIN  LABEL  OP    OPERANDS                                           SFX CT  LOCN  INSTRUCTION TYPE  CARD
 986                BCE   SW3,COUNT,1                                             8  3793  B H66 A59 1        176
 987                BCE   SW4,COUNT,2                                             8  3801  B H77 A59 2        176
HI53NH44A590BH55A590BH66A591BH77A592   L036H08,G77G85,G93H01,040040104001762TAP9
 988                BCE   SW5,COUNT,3                                             8  3809  B H88 A59 3        177
 989                BCE   SW6,COUNT,4                                             8  3817  B H99 A59 4        177
 990                BCE   SW7,COUNT,5                                             8  3825  B I10 A59 5        177
 991                H     1,1                                                     7  3833  . 001 001          177
 992                B     *-10                                                    4  3840  B H33              177
BH88A593BH99A594BI10A595.001001BH33    L035H43,H17H25,H33H40,040040104001772TAP9
 993         SW1    H     002,002                                                 7  3844  . 002 002          178
 994                B     SWOUT                                                   4  3851  B I43              178
 995         SW2    LCA   ADDR,150                                                7  3855  L 635 150          178
 996                B     SWOUT                                                   4  3862  B I43              178
 997         SW3    LCA   ADDR,153                                                7  3866  L 635 153          178
 998                B     SWOUT                                                   4  3873  B I43              178
.002002BI43L635150BI43L635153BI43      L033H76,H51H55,H62H66,H73040104001782TAP9
 999         SW4    LCA   ADDR,157                                                7  3877  L 635 157          179
1000                B     SWOUT                                                   4  3884  B I43              179
1001         SW5    LCA   ADDR,160                                                7  3888  L 635 160          179
1002                B     SWOUT                                                   4  3895  B I43              179
1003         SW6    LCA   ADDR,164                                                7  3899  L 635 164          179
1004                B     SWOUT                                                   4  3906  B I43              179
L635157BI43L635160BI43L635164BI43      L033I09,H84H88,H95H99,I06040104001792TAP9
1005         SW7    LCA   ADDR,167                                                7  3910  L 635 167          180
1006                MLC   CARDCT,175                                              7  3917  M C17 175          180
1007                P                                                             1  3924  4                  180
1008                A     @1@,CARDCT                                              7  3925  A I59 C17          180
1009                MLC   @0@,COUNT                                               7  3932  M I64 A59          180
1010                B     SWOUT&7                                                 4  3939  B I50              180
L635167MC171754AI59C17MI64A59BI50      L033I42,I17I24,I25I32,I39040104001802TAP9
1011         SWOUT  A     @1@,COUNT                                               7  3943  A I59 A59          181
1012                B     0                                                       4  3950  B 000              181
1013                H     TEMP#3                                                  4  3954  . I67              181
1014                DCW   @,@                                                     1  3958                     181
1015                LTORG *                                                             3959
                    DCW   @1@                                                     1  3959             LIT     181
                          @ @                                                     1  3960             LIT     181
                          @000@                                                   3  3963             LIT     181
AI59A59B000.I67,1 000                  L021I63,I50I54,I58I59,I60I61104001812TAP9
                          @0@                                                     1  3964             LIT     182
       1013  TEMP         #03                                                     3  3967             AREA    182
1016         GM1    DCW   @}@                                                     1  3968                     182
1017                DCW   @}@                GROUP MARK - HIGH STORAGE POINT      1  3969                     182
1018         *
1019                ORG   3751                                                          3751
0   }}                                 L006I69,I65I68,I69040,040040104001822TAP9
1020                LCA   1,1                                                     7  3751  L 001 001          183
1021         LOADXX EQU   *                                                          3757
L001001                                L007G57,040040,040040,040040104001832TAP9
                                       N000000,040040,040040,040040B16701842TAP9
,015022)024056,029036,040047,0540611001,001008B001     ,001008B001     01852TAP9
,068072)063067/061039                                        ,001001104001862TAP9
1022                EX    SYSTEM                                                       B 167              184
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                          PHASE 9 DA SUBSEQUENT ENTRY SUBROUTINE - TAPE RECORD       2TAP9               PAGE   23

 SEQ PG LIN  LABEL  OP    OPERANDS                                          SFX CT  LOCN  INSTRUCTION TYPE  CARD
1023                JOB   PHASE 9 DA SUBSEQUENT ENTRY SUBROUTINE - TAPE RECORD
1024         *
1025                ORG   OVRLAY                                                          3518
1026                B     DADONE                                                 4  3518  B C84              187
1027         *
1028                BCE   *&5,OPER-3,                                            8  3522  B E34 ?01          187
1029                B     BSP3                                                   4  3530  B D95              187
1030                CW    ERRPOS-1,ERRPOS-2                                      7  3534  ) ?71 ?70          187
1031                CS    332                                                    4  3541  / 332              187
1032                CS                                                           1  3545  /                  187
1033                MLC   LOCATN,ADDR                                            7  3546  M ?80 635          187
BC84BE34?01 BD95)?71?70/332/M?80635    L035E52,E22E30,E34E41,E45E46104001872TAP9
1034                B     DECOD                                                  4  3553  B 497              188
1035                LCA   EDIT,290                                               7  3557  L P45 290          188
1036                MCE   WORK,290                                               7  3564  E 640 290          188
1037                MLC   LOCATN,ADDR                                            7  3571  M ?80 635          188
1038                ZS    LITCNT,HOLD                                            7  3578  ! ?76 B95          188
1039                A     @1@,HOLD                                               7  3585  A G24 B95          188
B497LP45290E640290M?80635!?76B95AG24B95L039E91,E57E64,E71E78,E85040104001882TAP9
1040                B     MODAD                                                  4  3592  B Q12              189
1041                MLC   RESULT-1,ADDR                                          7  3596  M C02 635          189
1042                MLC   @000@,TEMP                                             7  3603  M G27 I67          189
1043                MLC   PARAMT&9,TEMP                                          7  3610  M ?90 I67          189
1044                MLC   @000@,HOLD                                             7  3617  M G27 B95          189
1045                MLC   PARAMT&19,HOLD                                         7  3624  M A00 B95          189
BQ12MC02635MG27I67M?90I67MG27B95MA00B95L039F30,E96F03,F10F17,F24040104001892TAP9
1046                A     PARAMT&60,HOLD                                         7  3631  A A41 B95          190
1047                C     LITCNT,@000@                                           7  3638  C ?76 G27          190
1048                BE    SUBFLD                                                 5  3645  B G13 S            190
1049                MCS   CARDCT,314                                             7  3650  Z C17 314          190
1050                MLC   @FIELD@,309                                            7  3657  M G32 309          190
1051                B     SETWM                                                  4  3664  B G73              190
AA41B95C?76G27BG13SZC17314MG32309BG73  L037F67,F38F45,F50F57,F64040104001902TAP9
1052         DECRMT S     @1@,TEMP                                               7  3668  S G24 I67          191
1053                MZ    @ @,TEMP                                               7  3675  Y G33 I67          191
1054                C     @000@,TEMP                                             7  3682  C G27 I67          191
1055                BE    BSPXX                                                  5  3689  B G51 S            191
1056                B     MODAD                                                  4  3694  B Q12              191
1057         SUBACK MLC   RESULT-1,ADDR                                          7  3698  M C02 635          191
SG24I67YG33I67CG27I67BG51SBQ12MC02635  L037G04,F75F82,F89F94,F98040104001912TAP9
1058                B     SETWM                                                  4  3705  B G73              192
1059                B     DECRMT                                                 4  3709  B F68              192
1060         SUBFLD MLC   @SBFLD@,309                                            7  3713  M G38 309          192
1061                B     BSPXX                                                  4  3720  B G51              192
1062         *
1063                LTORG *                                                               3724
                    DCW   @1@                                                    1  3724             LIT    192
                          @000@                                                  3  3727             LIT    192
       1050               @FIELD@                                                5  3732             LIT    192
BG73BF68MG38309BG511000FIELD           L028G32,G09G13,G20G24,G25G28104001922TAP9
                          @ @                                                    1  3733             LIT    193
       1060               @SBFLD@                                                5  3738             LIT    193
1064                ORG   3751                                                            3751
 SBFLD                                 L006G38,G34040,040040,040040104001932TAP9
1065         BSPXX  BSP   1                                                      5  3751  U %U1 B            194
1066                BSP   1                                                      5  3756  U %U1 B            194
1067                BSP   1                                                      5  3761  U %U1 B            194
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                              PHASE 9 DA SUBSEQUENT ENTRY SUBROUTINE - TAPE RECORD       2TAP9              PAGE   24

 SEQ PG LIN  LABEL  OP    OPERANDS                                            SFX CT  LOCN  INSTRUCTION TYPE  CARD
1068                B     PRINT1                                                   4  3766  B Y43               194
U%U1BU%U1BU%U1BBY43                   L019G69,G56G61,G66040,040040104001942TAP9
                                      N000000,040040,040040,040040B16701952TAP9
,015022)024056,029036,040047,0540611001,001008B001     ,001008B001     01962TAP9
,068072)063067/061039                                      ,001001104001972TAP9
1069                EX    SYSTEM                                                            B 167               195
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                          PHASE 9 EX AND XFR SUBROUTINE - TAPE RECORD              2TAP9              PAGE   25

 SEQ PG LIN  LABEL  OP    OPERANDS                                            SFX CT  LOCN  INSTRUCTION TYPE  CARD
1070                JOB   PHASE 9 EX AND XFR SUBROUTINE - TAPE RECORD
1071         *
1072                ORG   OVRLAY                                                           3518
1073                B     PRINT1                                                      4  3518  B Y43              198
1074         *
1075                SW    FSTIME                                                      4  3522  , C22              198
1076                BCE   *&5,COUNT,0                                                 8  3526  B E38 A59 0        198
1077                B     CDFULL                                                      4  3534  B M88              198
1078         SETEXC CW    FSTIME                                                      4  3538  ) C22              198
1079                MLC   @B@,168                                                     7  3542  M H45 168          198
1080                MLC   AOPND,171                                                   7  3549  M A53 171          198
BY43,C22BE38A590BM88)C22MH45168MA53171 L038E55,E22E26,E34E38,E42E49104001982TAP9
1081                CS    332                                                         4  3556  / 332              199
1082                CS                                                                1  3560  /                  199
1083                MLC   @B@,293                                                     7  3561  M H45 293          199
1084                MLC   AOPND,297                                                   7  3568  M A53 297          199
1085                MCS   CARDCT,314                                                  7  3575  Z C17 314          199
1086                MLC   @N000000@,146                                               7  3582  M H52 146          199
/332/MH45293MA53297ZC17314MH52146      L033E88,E60E61,E68E75,E82040104001992TAP9
1087                MLC   CARDCT,175                                                  7  3589  M C17 175          200
1088                A     @1@,CARDCT                                                  7  3596  A H53 C17          200
1089                P                                                                 1  3603  4                  200
1090                LCA   SETEX1,180                                                  7  3604  L G64 180          200
1091                SW    176                                                         4  3611  , 176              200
1092                MLC   SETUP-1,180                                                 7  3615  M Q10 180          200
MC17175AH53C174LG64180,176MQ10180      L033F21,E96F03,F04F11,F15040104002002TAP9
1093                MLC   CARDCT,175                                                  7  3622  M C17 175          201
1094                A     @1@,CARDCT                                                  7  3629  A H53 C17          201
1095                P                                                                 1  3636  4                  201
1096                LCA   SETEX2,180                                                  7  3637  L H44 180          201
1097                SW    176                                                         4  3644  , 176              201
1098                MLC   SETUP-1,180                                                 7  3648  M Q10 180          201
MC17175AH53C174LH44180,176MQ10180      L033F54,F29F36,F37F44,F48040104002012TAP9
1099                MLC   CARDCT,175                                                  7  3655  M C17 175          202
1100                A     @1@,CARDCT                                                  7  3662  A H53 C17          202
1101                P                                                                 1  3669  4                  202
1102                CS    180                                                         4  3670  / 180              202
1103                LCA   SETUP-1,180                                                 7  3674  L Q10 180          202
1104                B     BSP4                                                        4  3681  B D90              202
MC17175AH53C174/180LQ10180BD90         L030F84,F62F69,F70F74,F81040104002022TAP9
,015022)024056,029036,040047,0540611001L039G23,040040,040040,040040104002032TAP9
1105                DCW   @,015022)024056,029036,040047,0540611001,@             40  3724                     204
,                                      L001G24)G24G24,040040,040040104002042TAP9
001008B001     ,001008B001             L039G63)G25G25,040040,040040104002052TAP9
1106         SETEX1 DC    @001008B001     ,001008B001             @              40  3764                     206
                                       L001G64)G64G64,040040,040040104002062TAP9
,068072)063067/061039                  L039H03,040040,040040,040040104002072TAP9
1107                DCW   @,068072)063067/061039                  @              40  3804                     208
                                       L001H04)H04H04,040040,040040104002082TAP9
                    ,0010011040        L039H43)H05H05,040040,040040104002092TAP9
1108         SETEX2 DC    @                  ,0010011040          @              40  3844                     210
                    DCW   @B@                                                     1  3845             LIT    210
       1086               @N000000@                                               7  3852             LIT    210
                          @1@                                                     1  3853             LIT    210
1109         *
 BN0000001                             L010H53)H44H44,H45H46,H53040104002102TAP9
                                       N000000,040040,040040,040040B16702112TAP9
,015022)024056,029036,040047,0540611001,001008B001     ,001008B001     02122TAP0
,068072)063067/061039                                    ,001001104002132TAP0
1110                EX    SYSTEM                                                           B 167              211
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                   PHASE 10 - END CARD AND END OF JOB - IDENT AT 333 #0       2TAP0              PAGE   26

 SEQ PG LIN  LABEL  OP    OPERANDS                                    SFX CT  LOCN  INSTRUCTION TYPE  CARD
1111                JOB   PHASE 10 - END CARD AND END OF JOB - IDENT AT 333 #0
1112                ORG   OVRLAY                                                  3518
1113                DCW   @0@                                              1  3518                     214
1114                H                                                      1  3519  .                  214
1115                H                                                      1  3520  .                  214
1116                H                                                      1  3521  .                  214
1117                B     CDFULL                                           4  3522  B M88              214
1118         END2   B     MOVXX                                            4  3526  B G96              214
1119                CS    332                                              4  3530  / 332              214
0...BM88BG96/332              L016E33,E19E20,E21E22,E26E30104002142TAP0
1120                CS                                                     1  3534  /                  215
1121                MLC   @/@,140                                          7  3535  M G44 140          215
1122                BCE   NOEND,AADDR,                                     8  3542  B F18 ?67          215
1123         SETEND MLC   AOPND,143                                        7  3550  M A53 143          215
1124                MLC   @080@,146                                        7  3557  M G47 146          215
1125                SW    176                                              4  3564  , 176              215
/MG44140BF18?67 MA53143MG47146,176     L034E67,E35E42,E50E57,E64040104002152TAP0
1126                MLC   SETUP-1,180                                      7  3568  M Q10 180          216
1127                MLC   CARDCT,175                                       7  3575  M C17 175          216
1128                MLC   @/@,293                                          7  3582  M G44 293          216
1129                MLC   AOPND,297                                        7  3589  M A53 297          216
1130                MLC   @080@,301                                        7  3596  M G47 301          216
MQ10180MC17175MG44293MA53297MG47301    L035F02,E75E82,E89E96,040040104002162TAP0
1131                MCS   CARDCT,314                                       7  3603  Z C17 314          217
1132                CW    FSTIME                                           4  3610  ) C22              217
1133                P     PRINT1                                           4  3614  4 Y43              217
1134         NOEND  MLC   @$$$@,AOPND                                      7  3618  M G50 A53          217
1135                SW    ERRPOS-2                                         4  3625  , ?70              217
1136                B     SETEND                                           4  3629  B E50              217
1137         EOF4   RWD   2                                                5  3633  U %U2 R            217
ZC17314)C224Y43MG50A53,?70BE50U%U2R    L035F37,F10F14,F18F25,F29F33104002172TAP0
1138                RWD   1                                                5  3638  U %U1 R            218
1139                CC    1                                                2  3643  F 1                218
1140                BW    *&5,EXCEED                                       8  3645  V F57 C26 1        218
1141                B     TSTERR                                           4  3653  B F76              218
1142                CW    EOJ&1                                            4  3657  ) G11              218
1143                CS    332                                              4  3661  / 332              218
1144                CS                                                     1  3665  /                  218
U%U1RF1VF57C261BF76)G11/332/           L028F65,F43F45,F53F57,F61F65104002182TAP0
1145                MLC   @OBJECT CORE EXCEEDED@,    220                   7  3666  M G70 220          219
1146                CC    T                                                2  3673  F T                219
1147                W                                                      1  3675  2                  219
1148         TSTERR C     ERRCNT,@0000@                                    7  3676  C C21 G74          219
1149                BE    EOJ                                              5  3683  B G10 S            219
1150                CS    332                                              4  3688  / 332              219
1151                CS                                                     1  3692  /                  219
MG70220FT2CC21G74BG10S/332/            L027F92,F73F75,F76F83,F88F92104002192TAP0
1152                MCS   ERRCNT,204                                       7  3693  Z C21 204          220
1153                MLC   @ERRORS@,211                                     7  3700  M G80 211          220
1154                CC    T                                                2  3707  F T                220
1155                W                                                      1  3709  2                  220
1156         EOJ    CS    332                                              4  3710  / 332              220
1157                CS                                                     1  3714  /                  220
1158                MLC   @END OF ASSEMBLY@,215                            7  3715  M G95 215          220
ZC21204MG80211FT2/332/MG95215          L029G21,G00G07,G09G10,G14G15104002202TAP0
1159                CC    A                                                2  3722  F A                221
1160                W                                                      1  3724  2                  221
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                              PHASE 10 - END CARD AND END OF JOB - IDENT AT 333 #0       2TAP0               PAGE   27

 SEQ PG LIN  LABEL  OP    OPERANDS                                           SFX CT  LOCN  INSTRUCTION TYPE  CARD
1161                CS    180                                                     4  3725  / 180              221
1162                P                                                             1  3729  4                  221
1163                SS    4                                                       2  3730  K 4                221
1164                H     999,999                                                 7  3732  . 999 999          221
1165                B     *-10                                                    4  3739  B G32              221
FA2/1804K4.999999BG32               L021G42,G24G25,G29G30,G32G39104002212TAP0
1166                H                                                             1  3743  .                  222
1167                LTORG *                                                                 3744
                    DCW   @/@                                                     1  3744            LIT    222
                          @080@                                                   3  3747            LIT    222
                          @$$$@                                                   3  3750            LIT    222
       1145               @OBJECT CORE EXCEEDED@                                 20  3770            LIT    222
                          @0000@                                                  4  3774            LIT    222
       1153               @ERRORS@                                                6  3780            LIT    222
./080$$$OBJECT CORE EXCEEDED0000ERRORS L038G80,G44G45,G48G51,G71G75104002222TAP0
       1158               @END OF ASSEMBLY@                                      15  3795            LIT    223
1168                DCW   @}@                                                     1  3796                   223
1169                ORG   3796                                                              3796
END OF ASSEMBLY}                    L016G96,G96040,040040,040040104002232TAP0
1170         MOVXX  MLC   NOPXX,TSTOVF&1                                          7  3796  M H11 !00          224
1171                CS    180                                                     4  3803  / 180              224
1172                B     END2&4                                                  4  3807  B E30              224
1173         NOPXX  NOP                                                           1  3811  N                  224
MH11!00/180BE30N                    L016H11,H03H07,H11040,040040104002242TAP0
                                    N000000,040040,040040,040040B16702252TAP0
,015022)024056,029036,040047,0540611001,001008B001     ,001008B001      02262TAP0
,068072)063067/061039                                  ,001001104002272TAP0
1174                EX    SYSTEM                                                           B 167              225
1175         *
1176                ORG   SYSTEM                                                            0167
1177                WTW   1,CHECK                                                 8  0167  L %U1 082 W        228
1178                ORG   CHECK                                                             0082
L%U1082W                            L008174,040040,040040,040040104002282TAP0
1179                DCW   @%@                                                     1  0082                   229
1180                ORG   *&2                                                               0085
%                                   L001082,040040,040040,040040104002292TAP0
1181                DCW   @}@                                                     1  0085                   230
}                                   L001085,040040,040040,040040104002302TAP0
                                    N000000,040040,040040,040040B16702312TAP0
,015022)024056,029036,040047,0540611001,001008B001     ,001008B001      02322TAP0
,068072)063067/061039                                  ,001001104002332TAP0
1182                EX    SYSTEM                                                           B 167              231
                                    /167080                                 02342TAP0
1183                END   SYSTEM                                                           / 167 080          234
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